

February 2001

Volume 69 No 2



Amateur Radio

Regular
Columns

Urunga Convention

1949—2001

Australia's new Electromagnetic Radiation Requirements

What they are and how to comply

- A Low Frequency Beacon Transmitter
- A Simple Q Meter
- The Repair of the Hi-Gain 18AVT Antenna
- Energy in Radio Waves

World War 2

Clandestine Communications

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Amateur Radio

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Editorial

Editor: Colwyn Low VK5UE
edmag@chariot.net.au

Technical Editor: Peter Gibson VK3AZL

Publications Committee Members
Ron Fisher VK3OM
Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Rice VK3ABP
Gill Sones VK3AUI

Advertising

Mrs June Fox,
Tel: (03) 9528 5962

Hamads

"Hamads" Newsletters Unlimited
PO Box 431, Monbulk Vic 3793
Fax: t.b.a
e-mail: news@webtime.com.au

Office

10/229 Balaclava Road
Caulfield, Victoria
Telephone (03) 9528 5962
Facsimile (03) 9523 8191

Business Hours 9:30am to 5:00pm weekdays

Postal

P.O. Box 2175
CAULFIELD JUNCTION
VICTORIA 3161
AUSTRALIA
e-mail: armag@hotkey.net.au

Production

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The second Urunga Radio
Convention 1950.
See Club News, page 17.

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Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted, at \$4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at \$2.50 each (plus an additional \$2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
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Founded 1910

Representing

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Registered Federal Office of the WIA

10/229 Balaclava Road
Caulfield North Vic 3161

Tel: (03) 9528 9962 Fax: (03) 9523 8191
<http://www.wia.org.au>

All mail to
PO Box 2175 Caulfield Junction VIC 3161

Business hours: 9.30am-3pm weekdays

Acting Federal Secretary

Peter Nalsh VK2BPN

Federal Office staff

June Fox Bookkeeper
Rita Trebilco VK3IF Examinations Officer

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Editorial Comment

Colwyn Low VK5UE

This has been a stressful month

The stock of material available to be published has just about been exhausted. If this issue seems a bit scrappy it is because we have been scraping the barrel. Now before you start about the editor being lazy etc. please remember it is your magazine. I am neither qualified nor willing to write technical articles across the whole field of Amateur Radio activities for use in the magazine. This is a part time commitment not a lifetime sentence.

So having got that of my chest what are we to do?

Now if one or two people are willing to select and the general readership wants it we could reprint general and technical articles from other national journals but not all of this material is directly useful in Australia because of differing licencing arrangements and availability of parts. I have heard second hand that most of January's AR was trivial or could have been gleaned from the appropriate books. Now not everyone has been an Amateur for 20 plus years with a technical background and a large library. So AR provides simple ideas for simple equipment for beginners and of these items some can find use in older Amateur Stations activities.

I have been asking for some time now for some higher level technical articles. Surely there are some amateurs who practice the skills and can string a few words together, draw neat circuit diagrams and take the odd ! photograph.

Do not keep saying why does AR not publish stuff I am interested in. Look around for someone who does work in the area you would like to know something about and see if you can get them to share their knowledge and skill with the rest of us.

The WIA is Australia's National

Amateur Radio body: Amateur Radio Magazine is its face to large numbers of people. It requires input from Australian Amateurs to shop front what we do in Australia and provides a link between WIA members.

I was talking to VK5UJ the Federal WebMaster the other day. He and I get slated for the same things not being up to date and not publishing relevant material. Well we are both in the same boat "Nothing in Nothing Out" and GIGO also applies.

Now please realise that AR is the place we share information with each other and where we can refer to information about current Amateur activities etc.

The regular columnists have to be thanked for their loyalty to the magazine and members for they make up about half of each issue. You may have sensed that there is a higher amount of material from VK5 these days. That arises from my being able to get a few people face to face against a wall. I need each State Division to do the same. I am running one new column this month "Beyond Our Shores" which provides an overview of current material in O/S Amateur Journals. Some of these are held by Federal Office, which should be able to provide photocopies of material referred to. You might have to ask David were he got access to some material if it is not held by Federal Office.

In closing I have now got my 1.2GHz transverter in a box and working. I have put 20 W of RF into it instead of 1 W at 146 MHz. I have replaced the fried potentiometer (I was lucky) and it is back on air. With the Quagi beam (ARRL Hand. book) its 10mW has several km capability. I have still to find a suitable test site for more complete tests.

May you be moved to share some of your bright ideas or activities with the rest of us.

Regards Colwyn VK5UE





World Amateur Radio Day

World Amateur Radio Day (WARD) this year has been proclaimed as April 18th. This is the day set aside each year throughout the World as the occasion on which radio amateurs are invited to showcase amateur radio to the public in general. The theme for 2001 has been designated by the IARU to be:

"Providing Disaster Communications: Amateur Radio in the 21st. Century"

Now, it is left to individual societies and clubs as to how WARD can be celebrated. With the theme related to work in the field of communications in times of disasters, it would be natural that WICEN would spring to mind as an obvious example of how in Australia the amateur radio service provides assistance. The promotion of WICEN through press releases and perhaps an actual working exhibit in a public place would be ways of achieving awareness

of amateur radio's role in disaster communications.

In any case, we should do whatever we can to promote the benefits of amateur radio to members of the public, many of whom have a false or biased view of what we do derived from misleading information in the newspapers and media generally.

The recent earthquakes in El Salvador and India are occasions where amateur radio was able to provide much needed

and instant communications assistance at times where normal public communications were devastated and not able to cope. It is the resource provided by the amateurs of those countries assisted by others overseas who were able to mobilise their stations so quickly that typifies the way that Amateur Radio in the 21st. Century is providing Disaster Communications.

We must be ever vigilant.

Federal WIA Convention Appointment To Federal Positions

The WIA Federal Convention and Annual General Meeting of the WIA will be held in Melbourne on 28/29 April 2001.

At this meeting, a number of positions will be filled. Nominations from interested persons must be received by the Federal Secretary at the registered office of WIA Federal in Melbourne no later than close of business on 16 March 2000.

The positions are:

President
Directors (3 positions to be filled)
Company Secretary (Federal Secretary)
Editor "Amateur Radio" journal
Publications Committee (5 positions)
WIA/ACA Liaison Committee (3 positions)
IARU Region III Liaison Officer
ITU International Regulatory and Radiocommunications Study Officer
Federal Media Officer
Federal Web Page Coordinator
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Federal Awards Manager
Federal WICEN coordinator
International Travel Host
ARDF Coordinator
Federal QSL Manager
VK9/VK0 QSL Bureau
QSL Collection Curator
Videotape coordinator

Nominations received direct will be considered but preference is likely to be given to Divisional nominees

Peter J. Naish VK2BPN
Federal Secretary.

Australia's new Electromagnetic Radiation Requirements

What they are and how to comply

Peter Parker VK3YE

12/8 Walnut Street, Carnegie, Victoria, 3163

E-mail: parkerp@alphalink.com.au

Novice Notes Online: <http://www.alphalink.com.au/~parkerp/nonline.htm>

Residents opposing mobile phone towers in their suburb. Community groups across the nation trying to halt the erection of high-tension power pylons. Writers charge telecommunications companies with downplaying the health effects of their products. Consumer organisation tests reveal that mobile phone users are subjecting themselves to RF energy, and are recommending use of hands-free kits to reduce exposure to the head. The phrase 'frying my brain with a mobile phone' enters the public vernacular.

The common thread uniting these issues is increasing concern about the health effects of electromagnetic radiation or EMR. The spread of mobile telephony has caused EMR to emerge from scientific obscurity to major public issue over the last decade. Public distrust of science and the lack of hard medical evidence of health effects only intensify the debate. It is in this context that the Australian Communications Authority (ACA) has set standards to limit human exposure to EMR in an attempt to allay public fears.

So what is EMR? Electromagnetic radiation is a form of cyclic or wave energy that has an electrical and magnetic component. It can be in the form of Electromagnetic fields (power line radiation), radio waves, light waves,

infra-red radiation, ultraviolet light, X-rays and Gamma rays. Electromagnetic waves can be classified as ionising or non-ionising radiation. Non-ionising radiation has photon energies too weak to break atomic bonds. However, non-ionising radiation causes other biological effects such as heating. Electromagnetic fields, visible light and radio frequency are all examples of non-ionising radiation.

Electromagnetic energy is emitted from radio transmitters, power lines, some electrical equipment and even the sun. Without electromagnetic radiation there would be no life on earth as there would be no sunlight. Research since the 1940s has demonstrated that electromagnetic energy also has biological effects, such

as heating of human tissue. The maximum exposure thresholds have been set with heating in mind. When exposure is increased to above these limits, heating of tissue will occur.

Government response

The ACA introduced standards designed to limit public exposure to EMR in February 1999. The standards aim to address the possible adverse health effects of RF EMR without unnecessarily compromising the benefits that radiocommunications technologies bring to modern living (Reference One).

The standards are already mandatory for mobile telephone equipment and are progressively being extended to nearly all radio users. Radio amateurs will be subject to EMR rules by the end of 2001. As in the US, which has had EMR regulations for some years, compliance will require amateurs to perform an EMR assessment of their station. As explained later this should be fairly simple for most amateurs running moderate power levels.

In September 2000 the ACA invited spectrum users (including amateurs) to partake in a trial of materials for performing EMR self-assessment. The draft information provided to participants is shown in Photo One. The main document is called *Human Exposure to Radiofrequency Electromagnetic Energy* and is subtitled *Information for licensees or operators of radiocommunications transmitters: Evaluation of compliance with the ACA standard* (Reference One). Six supplements, providing information for different spectrum users, were

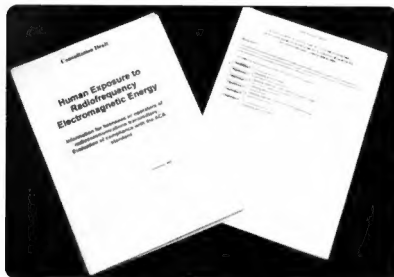


Photo One - The ACA's draft materials on EMR compliance for spectrum users

produced. Supplement Five deals specifically with amateur stations and describes the method amateurs should use to assess EMR compliance (Reference Two).

The trial was still running while this article was being written, and was scheduled to finish on January 15. Initial feedback from amateurs resulted in a revised draft Supplement Five being placed on the ACA's website. The tables elsewhere in this article are those that are included in Supplement Five, as revised to 4 December, 2000.

EMR measurement

Near-body EMR exposure is measured by a parameter called Specific Absorption Rate (SAR). The unit for this is watt per kilogram (W/kg). The SAR exposure limit for the general public is 0.08 W/kg average across the human body, with higher levels permissible for hands and feet.

Where the transmitter is operated away from the human body it is permissible to use derived limits, which are easier to measure. An example of a derived unit is power density, the unit for which is watt per square metre (W/m²). Because the transmission medium for radio signals is free-space, which has a known constant impedance (377 ohm), it is possible to calculate power density if either the electric field strength (volt/metre) or the magnetic field strength (amp/metre) is known.

The ACA has adopted the SAR limits from the lapsed national standard AS/NZS 2772.1 (Int): 1998 - *Radiofrequency fields Part 1: Maximum exposure levels - 3kHz to 300 GHz*. The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is developing a new national standard. The ACA will consider adopting this new standard when it becomes available.

Conducting an EMR assessment

The term 'EMR assessment' conjures up images of expensive test equipment, extensive field tests and complex calculations in the minds of many. However, many amateurs will find that their stations already comply, and will not need to perform detailed calculations to demonstrate this.

The proposed guidelines define two categories of installation. Category One covers a restricted range of installations as defined in Appendix One of Reference One. Category One installations are those with limited operating conditions and installation restrictions that ensure compliance with the ACA's human exposure standard and for which there is no requirement for an explicit evaluation process.

Category Two covers all other transmitting stations and requires some form of formal assessment process. All amateur installations are included in Category Two. Category Two permits either self-assessment using one of a range of methods or third-party evaluation by a qualified assessor. The self-assessment methods range in complexity, depending primarily on the precision desired. Methods range from reference to pre-calculated tables of

separation distances, calculation of separation distances based on the specific details of an installation, through to measurement by a qualified person. In all cases, the prediction methods are constructed so as to "err on the safe side", that is, they predict separation distances that are greater than are actually needed to achieve compliance with the standard.

Initial EMR evaluation

The initial assessment takes the form of look-up tables for a given frequency, output power level and antenna gain. These tables give the minimum distance that antennas need to be from areas accessible to the public ('separation distance') to keep public exposure below EMR limits (Tables 2a and 2b in Supplement Five). Supplement Five also provides tables for a variety of antennas and power levels commonly used by amateurs. The separation distance is measured from the nearest point of the antenna to the area of interest.

The tables require those performing assessments to use average RF power levels in their calculations. Where the average and the peak power differ (for example SSB and CW modes) Table One of Supplement Five provides the relevant peak to average power conversion ratio.



Photo Two - Antennas near adjoining properties may need to be moved to comply with the minimum separation distances specified in the ACA's EMR material.

The separation tables are based on continuous transmissions for any six minute period (ie the worst case). If transmissions are kept brief, with reasonable breaks between them, stations will be able to run higher power levels and maintain separation applicable for lower power levels and still comply with exposure standards. Transmit periods in any six minute period are not included in the tables, because they vary so much between individual operators and different types of amateur activity.

Provided that separation distances are met on all frequencies with all antennas, the evaluation is complete, and the station can be considered EMR compliant. A record of the date of assessment and the method used must be kept, together with a signed declaration of compliance. The ACA suggests that amateurs record the results of evaluations in their log.

Detailed EMR evaluation

Not all amateur stations will meet the minimum separation requirements mentioned above. Those most likely to fail include:

- Stations in flats, units or terrace houses
- Stations using indoor antennas
- Stations using low wire antennas near property boundaries
- Stations using directional antennas on short masts, where the beam's main lobe is firing towards neighbouring properties and areas accessible to the public

Amateurs subject to antenna space or council planning restrictions will have the most difficulty meeting the minimum separation requirements. To determine if the station is EMR compliant, a more detailed assessment is required. The detailed level of assessment might be undertaken either by using the equations set out in Reference 1 or by "customisation" of the appropriate table(s) in Supplement 5 so that the table(s) used take(s) account of the actual operating conditions of the specific installation.

Only qualified persons may perform assessment that involve the use of on-site measurements. Suitable persons include those with relevant formal training or experience in RF measurement. An amateur certificate of proficiency by itself is not considered a

sufficient qualification to perform EMR assessment by measurement. However, the ACA will accept self-assessments by licensed amateurs provided that these are done with the charts, graphs, equations or software that are provided in the compliance booklets.

EMR is predicted by calculating the power density present at a specified distance from a specified antenna fed with a specified power level.

The formula is as follows:

$$S = \frac{PG}{4\pi R^2}$$

S is the power density measured in watt/metre²

P is the power input to the antenna measured in watt

G is the gain of the antenna in the direction of interest relative to an isotropic radiator expressed as a linear power gain (eg 3 dBi = a linear power gain of 2).

π is 3.1416

R is the distance from the centre of the radiation from the antenna to the nearest publicly accessible point to the antenna

If it is desired to obtain a power density measured in units of mW/centimetre² (which is common), power (P) should be expressed in units of milliwatts, and the distance (R) should be in centimetres.

The above calculations are simplified and assume many things about the antenna system. In the 'real world', the results obtained may need to be modified by compensating factors. These include:

- Compensating for the increased power density of low antennas (rooftop or ground mounted) by assuming a 2.56 increase in power density.
- Compensating for in-building attenuation – where an antenna is mounted on the roof, exposures inside a building will be reduced 10 to 20 dB due to attenuation caused by building materials in the walls and roof.
- Compensating for a non-uniform or focused (non-isotropic) antenna radiation pattern – a high-gain yagi or collinear vertical antenna on a tall mast will have much reduced radiation at ground level.
- Compensating for near-field gain reduction – the standard equations, pre-calculated tables and graphs are based on the assumption that the

'far-field' equation given above can be applied without regard to the separation distance. However this assumption fails in some situations (principally at low power and low frequency) and the far field equation tends to over-predict radiation very close to an antenna. The consequence of this is that the tables and graphs indicate minimum separation distances that are greater than those actually needed to ensure compliance with the standard.

Further information on incorporating these compensating factors into calculations appears in Reference One.

The minimum separation distance calculated should be compared with the actual distance between the antenna and the point of closest public access. If this distance is greater than the minimum separation distance, the station is EMR compliant. The licensee must then make a *Declaration of Conformity* to certify this fact.

Amateurs using frequencies above 1300 MHz should use the evaluation methods applicable for Fixed Link Services (Supplement One – Reference Three) or General Radio Services (Supplement Six – Reference Four). It is current ACA licensing policy that amateurs applying for a high-power permit must demonstrate EMR compliance by measurement undertaken by an accredited assessor.

Both the simpler and more detailed assessments require that the licensee sign a *Declaration of Conformity* to declare that his/her equipment complies with the EMR standard. The *Declaration of Conformity* must also be signed when subsequent changes have been made to the station. The licensee should record information on the evaluation method, the person who did the evaluation, results achieved, and whether the results indicate compliance.

In either case (simplified or detailed assessment), enforcement may include audits of these records, random inspections and investigation of complaints.

What sort of station installations comply?

The following are examples of minimum separation distances for 50 watt (average) to common amateur antennas under the ACA's EMR requirements.

- 3.5 MHz dipole: 1.06 metres
- 14, 21 or 28 MHz dipole: 1.77 metres
- 7 MHz ground plane: 1.34 metres
- 14/21/28 MHz three element triband yagi: 3.54 metres (see note)
- 50/144/440 MHz discone: 1.8 metres
- 146 MHz ground plane: 1.58 metres
- 144 MHz seventeen element yagi with 16.8dBi gain: 9.75 metres (see note)
- 446 MHz 5/8 wave whip: 2.24 metres

The minimum separation distances double if 200 watt is used, and halve if 12.5 watt is used. Stations not meeting these separation distances do not automatically fail, but must perform more detailed calculations to establish compliance.

Note: The separation distances quoted above for directional beam antennas apply only in the direction of the main lobe. A gain figure of 0 dBi can be applied outside the main lobe which can be taken being ± 45 deg off the boom axis for the purpose of compliance.

(Source: ACA Supplement Five as revised to December 2000)

Reducing exposure to EMR

If, after performing the compliance assessment, you don't meet the standards, there are several things you can do to ensure compliance. Some are set out below.

Increase separation by raising the antenna

A higher antenna support increases antenna distance from the ground, and thus increases separation from areas normally accessible to humans. This is particularly beneficial for directional antennas as the area of maximum radiation from the beam's main lobe is raised to well above ground level. The inverse square law applies - halve the distance between the antenna and people and exposure to radiation quadruples. Unfortunately this fact is sometimes lost on council planning regulators whose antenna height restrictions are subjecting people to unnecessarily high EMR exposure. Let's hope that amateurs can use EMR safety as a lever to obtain fewer restrictions on towers and antennas.

Reduce transmitter power output

Obviously a more powerful transmitter will increase exposure to radiation. The EMR standards make it even more important that amateurs use the minimum amount of power necessary to maintain communication.

Use a lower duty-cycle transmission mode

Modes such as FM voice, slow-scan television and many digital modes (eg RTTY and PSK-31) have a 100 per cent duty cycle. This means that the radiated power remains at the maximum level during the entire transmission. Other modes have lower duty cycles. For example, ordinary unprocessed SSB voice transmissions have a duty cycle of around 20 per cent. CW and processed

SSB are 40 and 50 per cent respectively. With these modes, multiplying the transmitted peak power output by the duty cycle produces a (lower) average power output, which makes compliance easier.

The ACA's first Supplement Five draft referred only to peak power output and not average output, which is lower for some modes. Subsequent drafts have clarified this issue by including a table of peak to average power conversion factors for commonly used modes.

Shorten transmissions

Amateur activities such as crossband duplex operation, amateur television, sending Morse practice and relaying broadcasts involve long continuous transmissions. However many others, such as contesting, HF and VHF DXing,

Table One (from the ACA's draft Supplement Five - as revised to 4 December 2000)
Minimum separations by frequency, power and antenna gain.

Table 1a HF Bands					
Estimated distances from transmitting antennas necessary to meet [ACA-EMR] power density limits for general public exposure.					
Frequency (MF/HF) (MHz/Band)	Antenna Gain (dBi)	Power 10 watt	Power 25 watt	Power 50 watt	Power 120 watt
2(160m)	0	0.28	0.45	0.63	0.99
2(160m)	3	0.41	0.65	0.92	1.42
4(80m)	0	0.41	0.65	0.92	1.42
4(80m)	3	0.57	0.90	1.27	1.97
7(40m)	0	0.54	0.85	1.20	1.86
7(40m)	3	0.76	1.20	1.70	2.63
7(40m)	6	1.04	1.65	2.33	3.62
10(30m)	0	0.63	1.00	1.41	2.19
10(30m)	3	0.89	1.40	1.98	3.07
10(30m)	6	1.27	2.00	2.83	4.38
14(20m)	0	0.63	1.00	1.41	2.19
14(20m)	3	0.89	1.40	1.98	3.07
14(20m)	6	1.27	2.00	2.83	4.38
14(20m)	9	1.77	2.80	3.96	6.13
18(17m)	0	0.63	1.00	1.41	2.19
18(17m)	3	0.89	1.40	1.98	3.07
18(17m)	6	1.27	2.00	2.83	4.38
18(17m)	9	1.77	2.80	3.96	6.13
21(15m)	0	0.63	1.00	1.41	2.19
21(15m)	3	0.89	1.40	1.98	3.07
21(15m)	6	1.27	2.00	2.83	4.38
21(15m)	9	1.77	2.80	3.96	6.13
25(12m)	0	0.63	1.00	1.41	2.19
25(12m)	3	0.89	1.40	1.98	3.07
25(12m)	6	1.27	2.00	2.83	4.38
25(12m)	9	1.77	2.80	3.96	6.13
30(10m)	0	0.63	1.00	1.41	2.19
30(10m)	3	0.89	1.40	1.98	3.07
30(10m)	6	1.27	2.00	2.83	4.38
30(10m)	9	1.77	2.80	3.96	6.13

Table 1b VHF/UHF Bands

Estimated distances from transmitting antennas necessary to meet [ACA-EMR] power density limits for general public exposure.

Frequency (VHF/UHF) (MHz/Band)	Antenna Gain (dBi)	Power 10 watt	Power 25 watt	Power 50 watt	Power 120 watt
50 (6m)	0	0.63	1.00	1.40	2.19
50 (6m)	3	0.89	1.40	2.00	3.07
50 (6m)	6	1.27	2.00	2.80	4.38
50 (6m)	9	1.77	2.80	4.00	6.13
50 (6m)	12	2.50	3.95	5.60	8.65
50 (6m)	15	3.54	5.60	7.90	12.27
144(2m)	0	0.63	1.00	1.4	2.19
144(2m)	3	0.89	1.40	2.0	3.07
144(2m)	6	1.27	2.00	2.8	4.38
144(2m)	9	1.77	2.80	4.0	6.13
144(2m)	12	2.50	3.95	5.6	8.65
144(2m)	15	3.54	5.60	7.9	12.27
144(2m)	20	6.29	9.95	14.1	21.80
450(70cm)	0	0.63	1.00	1.4	2.19
450(70cm)	3	0.89	1.40	2.0	3.07
450(70cm)	6	1.27	2.00	2.8	4.38
450(70cm)	9	1.77	2.80	4.0	6.13
450(70cm)	12	2.50	3.95	5.6	8.65
450(70cm)	15	3.54	5.60	7.9	12.27
450(70cm)	20	6.29	9.95	14.1	21.80
1240(23cm)	0	0.63	1.00	1.4	2.19
1240(23cm)	3	0.89	1.40	2.0	3.07
1240(23cm)	6	1.27	2.00	2.8	4.38
1240(23cm)	9	1.77	2.80	4.0	6.13
1240(23cm)	12	2.50	3.95	5.6	8.65
1240(23cm)	15	3.54	5.60	7.9	12.27
1240(23cm)	20	6.29	9.95	14.1	21.80

NOTE: these separation distances apply only in the direction of the main beam/lobe of the antenna. The figures for 0 dBi gain can be applied outside the main lobe which can be taken as being +/- 45 degrees off boresight/antenna boom axis for the purpose of compliance.

or WICEN traffic handing entail a lot of listening punctuated by very brief transmissions.

According to the Category Two assessment rules, power can be averaged if short transmissions are broken up by periods of receiving. A six minute averaging period is used. This is a 'sliding' average. As an example, consider an operating sequence comprising of three minutes receive, one minute transmit, three minutes receive, three minutes transmit, two minutes receive, two minutes transmit and four minutes receive. The maximum transmitting time in any six minute period is four minutes. Even though the station may be running 100 watt, the time averaging rule produces a maximum average power of 67 watt over any six minute period.

Allowing for power averaging makes

compliance easier for those who only make short transmissions. An HF or VHF SSB DX operator who is only transmitting three minutes out of every six may comply with the exposure levels, whereas he might not if he was to operate continuously.

What's happening now?

The Australian Communications Authority is currently collating comments received from spectrum users in response to the voluntary trial of draft materials that ended last month.

Comments received will be used to improve the ACA's material, which will then be distributed in final form to spectrum users later this year.

The ACA expects that EMR compliance will become compulsory for Australian amateurs from late 2001.

Updates on the progress of the ACA's

EMR regulations are advised on the ACA's webpage at URL: <http://www.aca.gov.au> Also see URL: <http://www.aca.gov.au/standards/emr.htm> for copies of the reference material referred to in this article.

Conclusion

The basics of the ACA's new EMR regulations have been described. Whether you like it or not, these are here to stay. As responsible spectrum users, amateurs should obtain the ACA's material on the topic and perform any modifications required to make their stations comply.

Acknowledgements

I am indebted to the following for assistance rendered during the preparation of this article. Chris Arthur VK3JEG, Chief Technical Officer for the Communications Engineering group at RMIT University for technical review of the first draft of this article. Gilbert Hughes VK1GH and Keith Malcolm VK1ZKM provided a final proofread and liaised with the Australian Communications Authority on behalf of the author. Also Keith McCarthy VK3JNB provided a valuable 'second opinion' from a reader's perspective.

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This article appears in lieu of Novice Notes for this month. Novice Notes will resume in the April issue.

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World War 2 Clandestine Communications

Part 2

The Coast Watching Organisation

by Malcolm R Haskard VK5BA

While the coast watchers provided a significant contribution to WW2 and the defeat of Axis powers, the origins of the organisation occurred well before the commencement of the war.

It was known that in any war it is the side that controls the highways and byways, whether they be land sea or air, that wins, so in 1919 following a suggestion by the District Naval Officer, Western Australia, a Staff Paper was produced by the Navy's Melbourne Office for the Chief of Naval Staff.

The proposal was that people in coastal areas of northern Australia, New Guinea, Papua and the Solomon Islands be organized on a voluntary basis to report, particularly in war time, any unusual or suspicious circumstances, such as strange ships, planes or floating mines. The people to be used in the proposal included Post Masters, Police, Patrol Officers, District Officers, other Government employees, missionaries, planters and pilots of civil airlines. The paper was enthusiastically endorsed and a committee representing the three services was set up to implement the proposal. Since it was a Navy proposal it was left to the Naval Intelligence Division, Melbourne to implement and build up the Organisation.

An early problem was the communication means of reporting for those coast watchers in lonely and distant outposts where there was no electricity. The problem was eventually solved on mainland Australia by using pedal wireless (Traeger's invention in the late 1920s) and then gradually as various Government and private organizations introduced their own wireless communication networks the selected coast watcher personnel were allowed to use these networks. The Navy

insisted on using codes for security reasons, initially the Playfair code was employed. Also produced and distributed by the Navy was the booklet "The Coast Watching Guide".

At the outbreak of WW2 the Organisation was some 800 strong and ready for operation, but needed someone to command it. Eric Feldt, then a Lieutenant Commander RAN on the Emergency List was mobilized and appointed Staff Officer (Intelligence), Port Moresby, his responsibilities included the extension of coast watching facilities placing communication equipment at strategic points to cover the north and north eastern approaches to Australia.

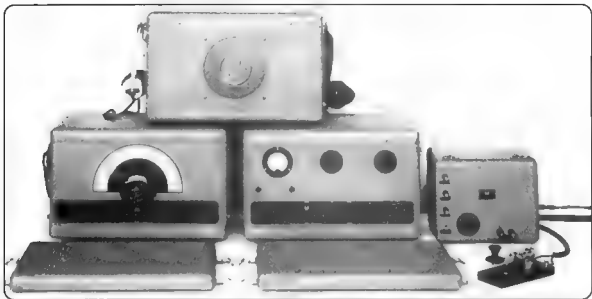
"...in any war it is the side that controls the highways and byways, whether they be land sea or air, that wins..."

It had been the responsibility of AWA, a semi Government organisation, to handle all radio traffic out of Papua and New Guinea. They had developed a new version, the "3B", of their very mechanically rugged Teleradio (AWA trade name) sets, one which stood up well to the tropics, heat and wet as well as amateur handling. It allowed both Morse code and speech to be sent. Consequently the "3B" became the standard equipment for coast watchers and consisted of three metal boxes with clip on front covers to protect the controls, one box being the crystal controlled transmitter, the second a general purpose communication receiver and the third housed the speaker and associated equipment such as cables, key, microphone and aerial

wire. The system operated from two 6 volt lead acid batteries and so a petrol driven charging set was also supplied with the Teleradio. The general purpose receiver was an advantage for it allowed the coast watchers to monitor other frequencies and learn developments in the war.

By August 1940 all Teleradios were in place and operators taught how to use the Playfair coding system. Each Teleradio transmitter was fitted with a crystal cut to what was known as the "x" frequency allowing coast watchers to talk to their particular control station, such stations being set up at Darwin, Port Moresby, Rabaul, and Thursday Island. At these stations the "x" frequency was monitored 24 hours every day so that no matter when a coast watcher called their message was received.

After Pearl Harbour and the Japanese entry into the war their rapid advances brought changes to the coast watching system. It had originally been set up so that participants could report activity from the Allied side of the war, but suddenly it found that many of its operators were now behind enemy lines. This meant that supplies had to be sent in, either by ship, submarine or parachute drop. One problem with the type "3B" Teleradios was their lack of portability. Not only was there the three metal sets, but also at least two lead acid batteries (one set being charged while the other in use), the generator and cans of petrol. The generator was the heaviest item at 32 kg (70lb). Consequently up to ten native carriers were often required to carry the vital communication equipment to a new base. A request had been made for new and more portable Teleradio equipment, but the upgraded replacement, type "3BZ", still lacked portability. As the type number suggests



The AWA "3B" Teleradio set, showing (L to R) receiver (3C6770), transmitter (J6798), optional aerial tuning unit (J6847) and key. Speaker box (D6799) is on top with head phones and microphone. (Acknowledgments to Colin MacKinnon, VK2DYM)

there was little difference, an upgraded transmitter and a smaller speaker box. Fortunately the RAAF had succeeded in acquiring from Radio Corporation a more portable, dry battery operated set called the RC 16B. Developed originally for the Victorian Forestry Commission as the RC16, the RAAF increased the receiver frequency range from 5.5 - 7.0 MHz to 3.00 - 7.00MHz and provided a low and high frequency band transmitter. It was now to be used by the Coast Watching Organisation and called the ATR 4A. It came in two canvas bags, the transceiver in one and the battery and spares in the other. By today's standards it was still large and bulky and weighed about 19 kg (42 lb), but a single person could carry it. It was favoured and used by the teams sent in by submarine to numerous Pacific Islands to undertake coast watching activities. Codes used were also upgraded, initially to a modified Playfair and then to the Bull code

The arrival of General Douglas MacArthur in Australia from the Philippines saw a further change. For the first 2 1/2 years of the war the Coast Watching Organisation had been administered by the Royal Australian Navy through the Naval Intelligence Division and then placed under the direct command of General Head Quarters. These now came under General MacArthur who assumed Supreme Control. The Allied

Intelligence Bureau was established in which the Coast Watching Organisation became a part, but still under the control of Commander Eric Feldt.

The coast watchers operated with great courage throughout the Pacific region, including New Guinea, Papua, Bougainville, New Britain, New Ireland, Solomon Islands and the Admiralty Islands. With the cessation of the war the coast watching activities came to an end.

Clandestine communication equipment

1. The AWA type "3B" Teleradio

The "3B" Teleradio as shown in Photo 1 came packaged as 16 items.

1. Transmitter type J6798 and later the 8J6798
2. Valves, vibrator and crystals for the transmitter
3. Cable pack for transmitter
4. Accessories, such as microphone, key, spare fuses and battery link cable
5. Superheterodyne receiver type C6770 or 3C6770
6. Valves, vibrator and crystal for the receiver
7. Cable pack for receiver
8. Accessories, such as headphones and spare fuses

9. Loudspeaker unit type D6799
10. Loud speaker cable
11. 2, 6 volt 120AH accumulators
12. A 12 volt engine charger
13. 200 feet, 7/20 aerial wire
14. 6, bull-nose insulators
15. 1, lead-in insulator
16. Instruction book No. 6800R

Items 1, 5 and 9 were supplied in strong pressed steel grey wrinkled painted cases, approximately 16 3/4" x 11 3/4" x 10 1/2" (420mm x 267mm x 300mm) having rounded edges and corners and a clip on front cover to protect transmitter and receiver controls. Top and bottom lids were also removable for servicing. Side clips could be added so that the cases could be mounted in standard PMG racks. Each transmitter and receiver had their own separate power supply incorporated on their respective chassis.

The early transmitter type (J6798) valve types were identical to those used in the previous Teleradio model, the "3A", consisting of a type 42 valve crystal oscillator driving an 807 power amplifier, giving 10 watt output power. For CW operation the cathode of the 807 was keyed, while for telephony the 807 was AM plate modulated using a double triode type 6A6 class B power amplifier with a type 42 valve preamplifier. In later "3B" models (type 8J6798) both the 42 and 6A6 valves were replaced by the

6V6 valve. While the handbook does not state the combined frequency range of the two bands available, it would be typically from 3 to 10 MHz. Controls were kept to a minimum and included, oscillator wavechange switch, oscillator and power amplifier plate tuning capacitors, power amplifier wavechange and aerial switch, and meter with selection switch. The transmitter matched into nominal 600 ohm impedance antennas, usually a single wire fed horizontal half wave dipole. For other antenna configurations a small aerial coupling unit (type J6847) was available. Power input was 12 volt DC feeding a vibrator power supply.

The type C6770, five valve receiver consisted of an 6U7G RF amplifier, 6J8G mixer oscillator, 6J8G IF and BFO, 6G8G detector, AVC and audio amplifier and a 6V6G audio power amplifier. The IF frequency was 535kHz. Three versions were made the C and 1C both being general purpose receivers covering the frequency range 200kHz to 30MHz in 5 switched bands. The model 3C had the top frequency range (9-30MHz) removed and replaced by a crystal oscillator locking the receiver to a single reception frequency. The C and 3C models were battery operated, either 6 or 12 volt DC input, while the type 1C operated from the AC mains using a 5Y3G rectifier. Input power from all three supplies was typically 25 watt. In addition to the main tuning condenser with its two speed 54:1 Muirhead vernier drive and brass etched scale, there were six other receiver controls all located at the bottom of the front panel (Photo 1). Going from left to right they are, audio volume, tone control, transmit/receive switch, AVC/BFO switch, wave change switch, and RF gain.

The manuals say nothing about set performance, however while a University student in the mid 1950s I had access to a type 1C receiver which performed admirably on the lower frequencies, but left much to be desired on band 5, the upper HF band of 9-30MHz. Perhaps this is not surprising and did not matter for the frequencies used by the coast watchers would have been under 10MHz (Band 4 went to just over 11MHz)

2. The AWA type 3BZ Teleradio

As the type number implies this Teleradio is a development of the type "3B". The construction methods for the

set were the same and in fact the receiver type was identical, however, later versions of the C6770 had a pilot light (upper LH front), an AWA name plate (upper RH front) added and new style pointer knobs for switches. The transmitter had been upgraded (now type J50062) and an optional speaker housing considerably reduced in size provided (type 1D13503, 8' x 8' x 4 1/2"). This Teleradio is shown in Photo 2.

The J50062 transmitter employed a 6V6G crystal oscillator, the frequency determined by one of up to six switched crystals in the 2.5 to 5.0 MHz range. The oscillator drove an 807 valve which acted either as a power amplifier or frequency doubler/amplifier. Thus the transmitter covered the frequency range 2.5 to 10.0 MHz, the frequency determined by the crystal selector x1, x2 switch. On telephony the 807 was plate modulated (AM) by a push pull 6V6G stage driven by a further 6V6G amplifier. Again for telegraphy the 807 cathode is keyed. Power out was typically 12 watt below 5 MHz and 8 watt above.

The transmitter had a built in antenna tuning unit so the seven front panel controls are, crystal selector, crystal oscillator tuning, power amplifier tuning, aerial coupling, aerial tuning, control switch and meter selector.

3. The Radio Corporation ATR 4A

The dry battery ATR 4A transceiver shown in Photo 3 was much more compact and portable. It fitted into a single box 15 1/2" x 8 5/8" x 6 1/8" (395 x 220 x 155 mm) that had a lift up lid that housed the speaker and protected the transceiver front panel controls. These were minimal, a 6:1 reduction receiver tuning dial with locking screw,

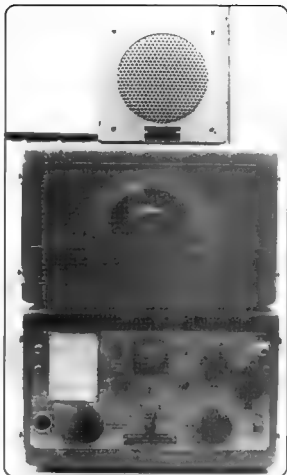


Photo 2: The updated AWA "3BZ" Teleradio set - (Acknowledgement to Bill Smith, Editor Radio Waves, Historical Radio Society of Australia)

BFO switch, meter switch, a set voltage control, volume (RF and IF gain control) and send/receive switch. The superheterodyne receiver covered the frequency range 3 to 7 MHz and had a 1D5GP RF amplifier, 1C7G mixer oscillator, 1D5GP 455 kHz IF amplifier, 1D8G detector, first audio stage and BFO and a 1L5G audio output stage. The tuning dial calibration was crude, having an outer black zero to ten scale (which decreased in the clockwise direction), while inside this black scale were five red dot whole frequency marker points, indicating 3.0 to 7.0 MHz, the clockwise direction being ergonomically correct, an increase in frequency.

The transmitter had a 1H4C crystal controlled oscillator driving a 1J6G parallel connected RF power amplifier. The transmitter was amplitude

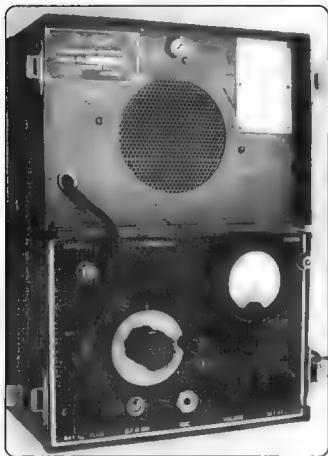


Photo 3a

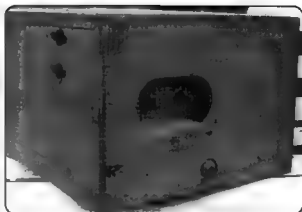


Photo 3b

Photo 3 (a & b) The portable ATR 4A transceiver, also known as the RC 16B. Microphone type is a No. 3. Photo 3b shows the two rear controls, key jack and the vertical cover which rotates allowing access to two trimmer capacitors. (Acknowledgments to Rodney Champness VK3UG)

modulated by a class B 1J6G push pull amplifier driven by an 1L5G preamplifier. The RC16 had some difficulty in that the transmitter RF stages had to be peaked for the crystal in use, so that it was not easy to change to a new and very different transmit frequency. This had prompted the RAAF to add the low (3-4.8 MHz) and high (4.8-7.0 MHz) band transmitter switch facility, recessed into the rear of the set. Also in the same recess was an antenna tune control, while the key jack position was lower and central on the rear of the unit. Later the type ATR 4B was produced, this set still retaining the Radio Corporation RC 16B designation, for the main improvement was simply tropic proofing. The transceiver fitted into two canvas haversacks for carrying, the set itself in one while the composite battery (type WD33, containing the 3v filament or "A" supply, 180v "B" supply tapped at 135v for the receiver, and the -4.5 v "C" bias battery), wire, spares and accessories into the other. The speaker

box in the transceiver lid could also accommodate the 50 foot aerial wire, insulator and cord, earth spike with lead attached and No.3 microphone.

The set appears to have performed well, but suffered the effects of all dry battery sets that the batteries eventually discharge and fail. Further, a number of coast watchers damaged their sets while traveling perhaps the result of trading weight and portability for robustness. In spite of this the ATR 4A performed well, allowed traveling without carriers with coastwatchers preferring them to the Signals type WS208.

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Adam Lution

A fairy story that came (or is coming) TRUE

Once upon a time there was an Eva Lution and an Adam Lution. They live happily in the jungle with an ugly snake and an apple for temptation.

Adam liked to experiment, but in those days things were very primitive. He would have patented the application of the fig leaf but being alone, there was no government authority to impose its value.

Adam and Eva had two boys, Cain and Able (his real name was Able Lution but Able sounded better). (Cain was something of an odd ball though they did name a street in King's Cross after him) What happened in their young days is somewhat vague, but their children had children and so the Lution family grew and went off and travelled into the brave new world. Centuries flew by. The wheel was invented. A better for fire other than BBQing your neighbours was found. Poly Tician appeared with two monsters called Greed and Fear and they started to rule.

One day little Lution was in the garden when Li Tening struck. (He was from the Orient). The hairs on little Lution's head suddenly stood straight up and her felt a tingle go through his body. "Whatever this is, I want it!" thought the lad. And so Eli Tricity was born. In the beginning Eli was betrothed to Terry Firma, but helped by their old friend Ma Coni they created Ray Deo. Now here was a monster about to spread his knowledge throughout the world.

Many people became followers of the ray Deo sect and intellect started to form around the world. It needed to be controlled and big brother (he was an elder brother of Poly Tician), saw a way to make an easy dollar. So Regie Lation was employed and with the help of Stan Dards they caused a set of trials that made you study hard to learn things you may never use again, (like learning calculus at school) before you could get a permit to join Ray Deo. One of these

followers was Wy Less (another oriental fellow), who wisely thought the best way to keep all informed was to create a club and provide a monthly newspaper. Eddy Torial took charge of this. Some of the Ray Deo sect followers joined the club, others decided to sit back, and join the Win Jing sect.

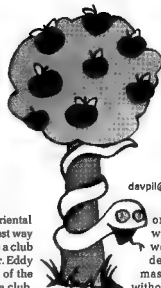
Eva Lution was long time passed, but her teachings were never forgotten. "Go forward - learn - teach" was her cry. "But we can't said the club, we haven't got the funds to produce our technical magazine".

About this time young Pro Ject (straight from university with little knowledge of the big world) got elected and given the task of solving the problem. His solution was simple: get Al Thority to reduce his standards so that more can join the sect. And so they did. Big Brother was delighted as he was now making more money for all his staff to have exotic four wheel drives.

What happened next? Hundreds of new voices were subscribing to Ray Deo, but very few joined the club. It cost money. They found the Win Jing sect much easier to follow and it was free. Many of the founding members of the sect left to leave it to the masses to run the club.

Unfortunately these masses had little knowledge and had even less long range vision. Their greed was to pollute yet more of the spectrum. So the decision was made again to reduce the standards, believing that numbers were the solution. Al Thority was so excited with the possibilities of greater income that he immediately agreed. (Greed was back, in a different disguise).

At this point May Hem, a lady of great experience took command. "Go for it" was her cry. And go for it they did. The masses increased. the clubs declined, no



David A. Pilley
VK2AYD,
Cain Close
Kings Creek 2446
davpil@midcoast.com.au

one could, or would, do the work. The leaders departed. The masses floundered without direction.

However unbeknown to the masses, there was still hope as a new family was being born. They used strange means of communications in the lower frequencies of the bands. They are self supporting because they have a special knowledge. Each year they increase their standards. They grew from Tes La's coil to Mi Crochip. They have created their own club, this new group, a break way sect from Ray deo, are the XPer's (The Experimenters). Their club was not vailed by AL Gory, however its entry is through the knowledge of ohm, Fleming, Henry and others. They don't have a secret handshake, but carry a miniature pump handle which they operate using a thumb and index finger. they have an interest in helping Dave Lament and Rea Search: two of the most outstanding officers of the new club. Under the guidance from Con Duct (believed to be middle European) they foster, observe and encourage a high standard of operating

If there is a moral to this story then it's

- 1 Quality will always succeed over quantity
- 2 The more difficult you make a goal, the more determined those who really want to score will rise to the challenge.

So lets up the anti-

Make the licence more difficult. We really need two classes of licence: a beginners and the ultimate

Remember, if you don't like it - CB is always available and welcomes you any time.

A Low Frequency Beacon Transmitter

Richard Rogers, VK7RC

I have been listening to low frequencies for some years since Robert, VK7ZAL, obtained a scientific licence (AX2TAR) and constructed an experimental low frequency transmitter and asked for reports.

However, I was unable to hear the New Zealand amateurs until I used the low noise reception techniques described in Break-In by ZL2BBJ (1). The essential requirement is to use a small antenna isolated from the noisy 240V power.

Recent information published by the WIA (2) suggested that a low frequency band may be available soon. So it seemed to be time to try a few ideas for transmitter construction.

At low frequencies, only vertical polarization is useful, and the average back-yard vertical antenna will have a gain of about minus 30dB, so signals at a distance will be very weak.

To overcome this, Steve, VK2ZTO (3), has suggested the use of frequency shift keying and computer sound card software to display the received signal visually. This allows the reception of signals well below audibility, the disadvantage being that the signalling is very slow. His program, VFSKCW, uses Morse code with the "dashes" of equal length to the dots, but at a higher frequency.

I have used this idea to encode an ident in VFSK Morse as well as in normal Morse for a low frequency beacon transmitter. The beacon cycle consists of my call sent three times in normal Morse at 10wpm and once in VFSK Morse with 5 second "dots" and "dashes". This cycle takes two or three minutes.

Some amateurs in the UK are using switch mode mosfet transmitters (4) and this seemed a good idea to try, especially as I had not used power mosfets before and excellent efficiency should be possible.

My transmitter circuit is shown in figure 1.

Power mosfets make very efficient switches and are commonly used in switch mode power supplies. They work best when driven by a very low impedance source to minimise feedback and switching times. Rockby Electronics were offering surplus BUZ350, N-type mosfets (200V, 22A, 0.12ohms) at a good price, so I bought 20.

I chose to use the TelCom TC4427, a high power CMOS, dual, non-inverting driver capable of 1.5 amp peak output, ideal for driving the 1300pF input capacitance of the mosfets. I bought mine from Farnell (part number 295-036).

To generate the LF drive I use a PIC16F84 micro-controller. This is a complete micro-computer comprising processor, memory and input/output ports all in an 18 pin chip. It has the great advantage that it is re-programmable, allowing program development by a somewhat "trial and error" method. Ideal for me!

The program has to divide the PIC's crystal clock down to generate the LF signal while at the same time generating the ident signal. By using a high crystal frequency it is possible to generate the drive signals with a time delay between mosfet on times.

The PIC I used was only rated to operate with a 4MHz crystal, but it ran reliably at 19MHz (the highest fundamental crystal I had), so I am happy using it with a 10.245MHz crystal to generate a 183KHz output. PICs are also available guaranteed to run at 10MHz and the PIC16F84A will run at 20MHz.

I use capacitive coupling between the PIC and the driver to (hopefully) avoid destroying the mosfets if I make an error in my programming and leave an output high. The diodes keep the 4427 drive signal between +4.3 and -7 volt.

The BUZ350s are subject to damage

by static electricity. To avoid this, I soldered the 56k resistors between the gate and source of the mosfets as soon as I took them from their conductive packaging. With these resistors permanently in place, there is little chance of damage during further handling.

The leads between the driver and the mosfets should be short, especially the earth connection.

To reduce the high peak voltages when the mosfets are switched off, 4.7nF polypropylene capacitors are connected from each drain to earth. (Farnell 659-745)

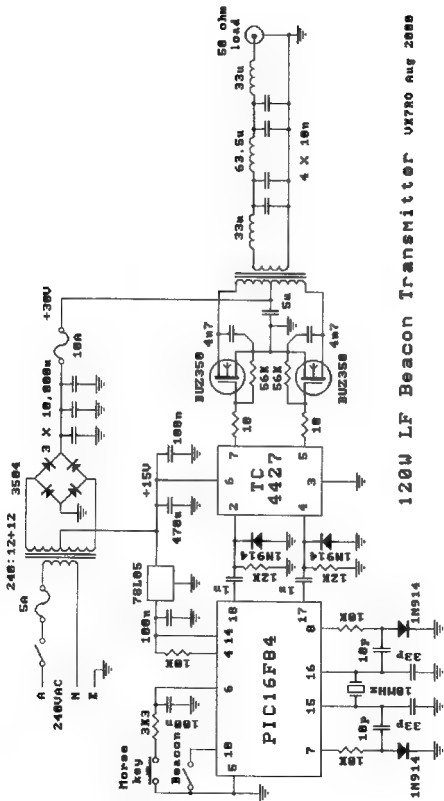
A number of different output transformer cores were tried, but I finally stacked two 35mm ferrite toroids from Jaycar (LO-1238). The primary is 5 turns of 26 X .3mm PVC insulated twin flex connected as a bifilar winding to reduce ringing. The secondary is 17 turns of 24 X 0.2mm.

The output low pass filter was made large enough to handle higher powers in future. I used 1.6mm wire and 1600V polypropylene capacitors (Farnell 659-770). The filter coils are wound on 49mm formers. The 33uH coils have 31 turns and the 63.5uH coil has 54 turns. They are mounted mutually at right angles.

Keyclicks are minimised by ramping the drive duty cycle up and down in software. This proved to be better than using a keying transistor and capacitors.

The power supply used a 12V + 12V transformer which was on hand and the bridge rectifier gave a loaded output of 30 volt. 15 volt is available from the transformer centre tap for the driver chip and is dropped to 5 volt for the PIC with a 78L05.

The transmitter is very efficient. With 120 watt output the current drain with the 30 volt supply is 4.2 amp. Most loss seems to occur in the bridge rectifier. It needed a much bigger heatsink than the output mosfets!



120W LF Beacon Transmitter UX7RO Aug 2000

Figure 1

The frequency shift is accomplished by using two of the PIC outputs to switch additional capacitors on its oscillator crystal. The frequency shift at 183KHz is 2Hz up for dashes and 2Hz down for dots!

Figure 2 shows the display from the program Spectrogram (5) reading the FSK signal with the transmitter running into a dummy load. There was no antenna on the receiver and the signal was only just audible. The fuzzy signal on the left is the normal Morse ident, where it is possible to see the sidebands due to the keying. The main part of the display shows my callsign in FSK Morse. Note that it starts and finishes with a space frequency between the dot and dash frequencies and there are space frequency marks between each Morse coded character. The computers colour display has more information than can be seen in black and white and signals well below the noise are readable.

I initially found Spectrogram tricky to set up. Figure 3 shows the set-up used to generate figure 2.

Copies of the program are probably best distributed as an e-mail attachment. Please contact me at vk7ro@netspace.net.au.

References:

1. Break-In May 1997 p22
2. WIA IARU paper at http://www.cck.net.au/iaru/papers/wia_if_band_proposal.pdf
3. VK2ZTO at <http://www.qsl.net/vk2zto/>
4. G0MRF at <http://www.g0mrf.freemove.co.uk/> and G3YXM at <http://www.picks.f9.co.uk/>
5. Spectrogram at <http://www.mnsinc.com/rsborne/gramd1.html>

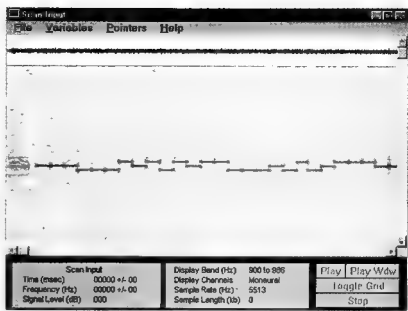


Figure 2

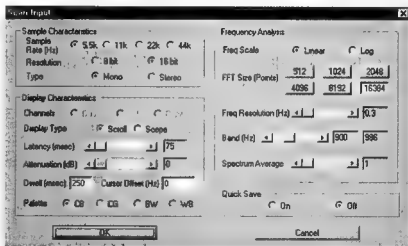


Figure 3

Be different!

Leave the mobile phone at home.

Take your handheld instead!

Correction

Amateur Radio September 2000

A Single Sideband Modulator for the LF Transmitter.

Page 14, Figure 4 - Speech Amplifier - Capacitor C7 is shown as 0.1 uF. Loaded into the following 4.7k.ohm potentiometer, cutting of low speech frequencies is a little severe. To rectify this, the value of C7 has been increased to 0.47uF.

73 Lloyd Butler VK6BR

The Urunga Radio Covention 2001

14 - 15 April

The Urunga Radio Convention will be on again at Urunga over the Easter weekend of the 14th and 15th April.

There will be plenty of events and plenty of competitions to win. Some equipment will be available for use and there will be special events for the up and coming Hams, raffles and pick the mystery objects, quizzes non-technical and technical, a lot of fun for all.



Portable Ham Radio at Urunga convention 1951.
VK2AMV's HF Radio Station in Newry Forest Fire
Tower. Above — Tower with 2AMV's FJ Holden.
Right — Gear inside the tower

Programme for 2001 Convention.

Easter Saturday

10a.m to 11a.m 3.5MHz Hunt on 3.5MHz (+ or — QRM)

11.30a.m to 12.00 noon Pedestrian. 2metre Hunt Multi Transmitters 146 MHz

Lunch

2 p.m. to 3 p.m. 2 metre Mobile Hunt multi transmitters 146 MHz

3.30.p.m to 4 p.m. Talk In. Mobile 2 metre 146.500 MHz

6 p.m. Dinner at a local venue(optional) followed by a social evening at the Senoir Citizens Rooms.

* Special Events for Juniors will be run on 80metre & 2metre Some gear will be available for loan.

Easter Sunday

9 a.m. to 9.30 a.m. Urunga Scramble any power, any frequency, any location, highest no. of contacts in 30 mins.

10 a.m. to 10.30 a.m. 40 metre fun type event Transistors radios only, foot power only.

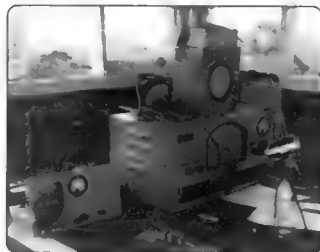
11 a.m. to 12 noon 2metre.Hunt mobile multi transmitters 146 MHz.

Lunch

1.30 p.m. to 2 p.m. 2 metre Hunt pedestrian 146 MHz multi transmitters.

2.30 p.m. to 3 p.m. Talk In pedestrian, 2metre (if time, may be changed) (no points, fun event)

4 00 p.m. Presentation of Prizes, Raffles, quizzes, etc.



Adelaide Hills Amateur Radio Society

After the very successful "Buy and Sell" in November the only other activity for the AHARS members was the pleasant occasion of the Annual Christmas Dinner. This year the dinner was held early to avoid clashing with other Christmas dinners but it still caused a conflict for some people. Nevertheless nearly 60 members and partners enjoyed a good meal and much conversation, as evidenced by the fact that noone was in a hurry to go home!!

The first meeting for the new year, a

combined meeting with the Elizabeth ARC gave AHARS members an opportunity to see and (some of them) to climb to the top of the water tower this club uses as its headquarters. The view was magnificent though the ladders were not the easiest to climb - YL members had been advised to wear slacks.

A sausage sizzle and an opportunity for the clubs and families to meet each other and a short talk about the technical aspects of lighting the opening and

closing ceremonies of the Sydney Olympics brought the meeting to a pleasant and interesting conclusion.

During term time the AHARS meets at the Blackwood High School in Seymour Road Blackwood on the third Thursday of each month, starting at 7.30pm. Any amateurs visiting VK5 are welcome to come along. If any more information is required please contact the President Geoff VK5TY or the Secretary VK5TAW QTHR the callbook.

VK5BAR Factor DDS

In the article on pages 21 to 25 of Amateur Radio for January 2001, describing the High Frequency Factor BBS by the Adelaide Hills Amateur Radio Society, it was indicated an alternative site was being sought for the station.

The South Australia VHF/UHF Group and the Elizabeth Amateur Radio Club

have undertaken to house and operate the BBS. Transmissions from VK5BAR will cease on February 10th, and return mid-March 2001, under the callsign VK5LZ.

The new location will be the old water tower at Elizabeth South. All other parameters will remain as published in the article.

Thanks to all those supporters of the BBS during its development, and to the EARC and the VHF/UHF group for undertaking this continuing task.

Special thanks and congratulations to Rob Gurr VK5RG for his dedication to this project.

Geoff Taylor
President AHARS

UNDER NEW MANAGEMENT!

After a period of uncertainty under its previous ownership, Radio & Communications magazine is back - at full steam - under new ownership

Len Shaw, who originally launched Amateur Radio Action and CB Action (later merged into Radio & Communications), returns to the editor's chair and with him come a host of the industry's best columnists and reviewers

Once again, Radio & Communications magazine is the essential read for the true enthusiast

Available at Newsagents now -- or subscribe to be sure of your copy

Subscription is \$55 per year (\$110 for two years)

Subscribe by fax to 03 9527 7766, by email to msnews@ozemail.com.au with credit card and mailing details, or mail a cheque made out to Cinch Pty Ltd (Publishing) to PO Box 1010, Caulfield North VIC 3161

A Simple Q Meter

Assemble the components of Fig. 1 on a breadboard or whatever you fancy and the result is a RF measuring tool that will substitute for more expensive instruments

The heart of the device is a calibrated variable capacitor (C_s), preferably a linear capacity type, driven by a vernier dial similar to DSE part No. P7170. A 100 pF variable is shown at Fig. 1 but a larger value can be used or the range of C_s can be extended by connecting a fixed or variable C between So3 and So4. The sockets So1 to So4 are banana sockets similar to DSE part P 1720

The measuring principle is similar to a Q meter; about 10 watt or less of RF from the station Tx is supplied to P1, and C_s is adjusted to resonate with an inductance connected between So1 and So2. Resonance is indicated by a maximum current rectified by diode G2 (OA95) and read on the external (or internal) 50 μ A meter (DSE Q2021).

To calibrate C_s and produce a graph like Fig.2, a known value inductance (L_s) is connected between So1 and So2 and the value of C_s , at about 4 settings of the vernier dial, is calculated by transposing the expression for resonance $XC_s = XL_s$

Editor's note

The formula for resonance can be rewritten as $C = \frac{1}{4\pi^2 f^2 L}$

There is only one variable on the right hand side (frequency) as, in this case, L is a constant. This means that the four plots need to be made at different frequencies: preferably different bands.

L_s is the known inductance which can be an "air wound" model constructed according to Drew Diamond's instructions at page 6 of the June 2000 edition of *Amateur Radio*. It is a good idea to make the "form factor" of L_s 3 or 4 i.e. length = 3 or 4 times the radius; there is an advantage to that; the formula for L and N are simplified

Readers who use a dip meter for RF measurements will find the Q meter is much more versatile and has the advantage of a stable frequency source. It will do all that a dip meter can do plus much more, it is limited only by the users skill at manipulating the basic resonance equations and a calculator.

Lindsay Lawless VK3ANJ
Box 780, Lakes Entrance Vic. 3909
Email: lnlawless@telstra.easvmail.com.au

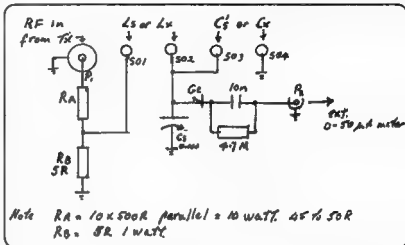


Figure 1

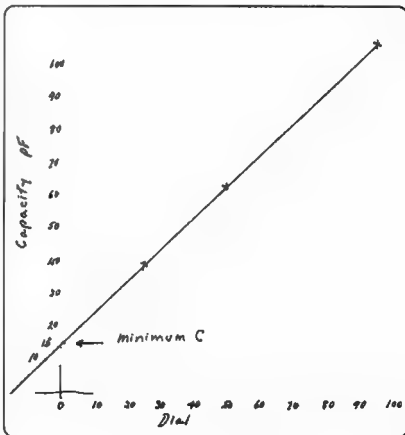


Figure 2

The Repair of the Hi-Gain 18AVT Antenna

Barry White VK2AAB

A common fault with 18AVT antennas seems to be the top coil going open circuit. This was the fault with mine. I sought advice via the packet network and got replies from South Australia and Canada. Both replies suggested that the end caps could be driven off the outer casing as it is only glued into the end caps.

Well they must have used better glue on mine because I could not budge them.

The casing of the coil was made of fiberglass not some form of hard plastic or ceramic as I had previously thought. So nothing to be lost I sawed the end caps off the tube. The construction is an inner tube with the loading coil wound on it and slipped inside the outer fiberglass tube. The coil is connected to screws in the aluminium casting inside the end caps. The screws were steel and had rusted out.

As you will have lost some length from the outer tube by cutting off the end caps you will need to cut the same amount off the inner coil former. You will probably need to remove a few turns from the coil but they can be tucked up in a coil inside the former.

As we are trying to do a better job than Hi-Gain I drilled two more holes into each of the castings and tapped them for 1/8" screws. Don't go down more than 3/8 inch or you will come out

through the end cap. If you don't have a 1/8" plug tap then go and buy one it will be well worth the effort. The biggest failure with this coil would seem to be poor connection between the wire and the aluminium casting. I am not sure but I think the steel screw corroded the wire. To overcome that problem I used brass screws and two of them to decrease the connection resistance and improve the chances of maintaining a good connection over a long period.

I had originally intended to solder the wire to the screw heads but I discovered that the wire is aluminium! Using brass washers under each screw head I wound the wire around both screws. It would be better to make some aluminium washers and so further reduce electrolytic corrosion. Go gently with the wire as it is very brittle.

After connecting one end of the coil to the screws araldite the outer former into the end cap. Before it sets check that you have a connection from the cap to

the other end of the coil. After it sets repeat with the other end of the coil.

As the overall length has changed a little and the coil might have lost a couple of turns you may have to adjust the top whip a little. However you should now have your multiband vertical antenna back in operation.

After I reassembled the coil I found that the tube below the coil was loose. It would not come off and I could not see how it was attached to the coil. Using a multimeter wriggling the tube caused a break in the connection to the bottom end cap.

It was a very brief interruption but would play havoc with the swr.

To fix this problem I drilled three small holes into the tube close below the coil and drove some stainless steel self tappers into the tube and into the internal part which is attached to the coil. This stopped the movement and has made the fitting rigid.



Edgar Olds VK2BY

Edgar Olds VK2BY passed away in Broken Hill on 30 December, 2000, aged 87. He had held his amateur licence since 1936. His early radio activities were curtailed by WWII. Like many amateurs of the time, he resumed his operations after the war, using a mixture of home brew and modified way surplus equipment.

During the late 1950s the pressures of a young family reduced his hours on air considerably, but not his enthusiasm. He became more active once the family was

grown up in the early 1970s. His activities at that time included HF rag chewing, VHF and amateur satellite operations and kindled my own interest in amateur radio. Once I was licensed we had daily contact on 40 metres to keep in touch, a practice we maintained until he was hospitalised in November 2000.

As time progressed his interests continued to expand and, when aged over 70, Edgar entered the world of computers and was soon active on

packet radio in addition to his other pursuits. His use of computers was extended around the time he turned 80 and became active on the Internet, using email to maintain contact with family and friends. A keen home builder, he liked to build equipment for use in the station, learning about valves, transistors and integrated circuits along the way. It was only his declining eyesight and health that saw him stop building.

Edgar was my father.

Kevin Olds VK1OK

Energy In Radio Waves

Lindsey Lawless VK3ANJ

The speculation by amateurs about the effect of the energy in an electromagnetic wave avoids a quantitative reference to the energy intensity, which after all will cause the damage, if any, to animal tissue.

The intensity of a radio wave is defined as the energy per unit area incident on a surface perpendicular to the direction of propagation; it is measured in joules per second per square metre. An energy flow of one joule per second is one watt so the intensity is expressed in watt per square metre. That is the energy which if collected by a receiving aerial and amplified, produces an intelligible receiver output. It will also accelerate plasma particles, and if enough can be collected it will boil the billy and burn the sausages.

The Sun electromagnetic energy

incident on the atmosphere surface is 1.4 kW per square metre (the Solar Constant) but that is attenuated by reflection and absorption and is reduced to about 550 watt per square metre at the Earth surface.

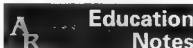
To boil one litre of water requires 420 Kilo joules, therefore all the energy collected in 13 minutes by a one square metre surface in clear sunlight will be required to boil a one litre billy, assuming there are no radiation or absorption losses.

How does a radio transmitter rate as an energy source? The energy from an isotropic source supplied with 100 watt

RF will produce an intensity at one metre of 8 watt per square metre. Doubling the power input or the "gain" will double the intensity at the same distance. Doubling the distance will reduce the intensity to 2 watt per square metre..

The intensity from an isotropic source is $W_i = P / 4 \pi r^2$

The ratio $W/W_i = G$ a number which can be less than unity; W is the actual intensity at a point distant r from the source, so the intensity from a source other than isotropic is $G \cdot W_i$, P is the power input.



Brenda M Edmonds, VK3KT, WIA Federal Education Co-ordinator.
PO Box 445, BLACKBURN VIC 3130

Please, help the next generation

Many clubs and individuals devote considerable time, energy and resources to encouraging and assisting new amateurs to become licensed operators. This is an admirable occupation, and those who do the encouraging and assisting should receive our full support. If amateur radio is to survive as a hobby, we must all be prepared to play a part in enlisting new operators. Similarly, if the WIA is to survive, we must encourage new and old licensed operators to become members of the WIA.

However, there is a lot more learning required before a new recruit becomes a fully operational amateur.

Many of those attending classes or reading by themselves to pass the suite of examinations required, have little background in radio and electronic applications. We tend to assume that "everyone knows what volt and ohm are", but few present day students have come up through the "apprenticeship" system which was common a generation or two ago. At that stage, most of the candidates had their interest sparked by meeting and visiting the amateur in the neighbourhood, who demonstrated equipment and explained principles as

the questions arose. In many cases, this amateur also coached the candidate for the examinations. Current candidates can sit through a course of lectures and pass the examinations without ever seeing a transceiver. I know of cases of candidates attending a whole course of lectures without having any idea of what a capacitor looked like.

Yes, you're right. This is a plea for those not directly concerned with classes or training to become more involved. Invite some of the students to your shack to experience a QSO in progress. Take some of the students on a Field Day. Or take a neighbour's teenager along and try to spark an interest that way. Or go and help a newly licensed amateur to set up and operate the new equipment.

There is a lot more to becoming an amateur than passing the examinations and buying a transceiver. There is a lot of amateur "culture" which needs to be learnt so that the new operator fits in with accepted practices. We have all heard operating practices criticised by other amateurs, but few of us go out of our way to lead the new licensee along the right paths.

A new amateur is faced with a bewildering range of possible specialities. Will it be UHF, LF, CW, packet, DX, RTTY or another? Unless the new amateur is exposed to these fields the choice is limited. Similarly, a new amateur may find his or her interests leaning towards involvement in further study, playing a part in the management of the club or WIA Division, public service through WIGEN, foxhunting, or DXCC. But before the decisions are made, it is necessary for a new amateur to experience some of the vast range of possible preferences. And existing amateurs are in the best position to provide those experiences.

There are some whom it is difficult to assist, by virtue of remote location or other constraints. But I am sure that any new licensee would welcome a helping hand or advice from an experienced amateur, and would then, in turn, be prepared to pass on the assistance to another in the time-honoured fashion. Let us maintain the traditions of helping the next generation and lending a hand when it is needed.

Howard O. Lorenzen W7BI

Howard died on 23 February 2000 aged 87. He graduated from Iowa State College as an electrical engineer and worked for Colonial Radio Company in the 1920s as chief designer. While there he designed the 5 valve TRF "King" an excellent receiver for its day. I have still got the "King" and its instruction book which Howard gave me and after 76 years it still works perfectly. This set is shown in the photograph.

Howard then moved to the Zenith Radio Corp. In 1939 he designed the superb 'Zenith' Transoceanic Short Wave Portable Radio.

Prior to WW2 Howard moved to the US Naval Research laboratory (NRL) in Washington. He worked developing Naval Radar systems and countermeasures against German Radio Guided Bombs. In the post war period he continued this work in electronics counter measures against radio and radar controlled weapons both near the ground and in space. In 1950 he headed NRL's Counter Measures Branch and supported US military in Korea and Vietnam. His group developed GRAB the Galactic Radiation and Background payload on the first operational reconnaissance satellite. In 1960 the Russians shot down a US U2 Spy plane. 52 days later Howard's team had designed a satellite system to make the U2 unnecessary.

Howard Lorenzen was Superintendent of NRL Space Systems

from 1971 to 1973. His work was recognised with the NRL Capt. Dexter Conrad Award for Scientific Achievement and a Navy Meritorious and Distinguished Civilian Service Award.

Howard entered Amateur ranks in 1927 and he obtained both WAS and DXCC status with the ARRL. After his retirement in 1973 he continued his Amateur radio interests, he became leader of the Issequeh Amateur Radio Club and supported their Emergency Mobilisation operations.

I got to know Howard through Amateur Radio and over the years. We first met while I was a Novice operator. We had many contacts over the succeeding years until his death.

Howard was a great Amateur and a great distinguished Electronic Engineer. He loved Ham Radio and will be missed



Photo 1. The "King" 5 valve TRF Receiver 1924



Photo 2. Etta Mae and Howard Lorenzen

by all who knew him.

The second picture is from his last Christmas card and he is seen with his wife Etta Mae.

Jim Davis VK7OW.

Arthur Lock VK3AUL (1911 - 2000)

Arthur came to Australia from Britain as a teenager with his widowed mother. Before long he was managing a 50,000 acre cattle station 150 miles west of Blackall, Queensland.

During WWII he saw service in the ME, became a Rat of Tobruk and served in the Pacific area, New Guinea and Borneo.

After the war he worked in the Bright

Victoria Post Office and lived in nearby Smoko where he became a very active radio amateur with the callsign VK3AUL.

In 1964 Arthur married a local girl, Ivy, and later formed the first scout troop in Bright.

In 1966 Arthur was promoted to Postmaster Bandiana, near Wodonga Victoria.

Arthur was awarded the BEM in 1972 for Valuable Community Work in scouting and communications.

After many years of retirement in Wodonga, Arthur began to suffer ill health during 1999 and died two days short of his 90th birthday.

Arthur Lock VK3AUL — over but not out

Merv Collins VK3AFO

Digital Modes

from QSL January 2001
used by permission

Digital Waves

Is there life after SSB (and CW)?

The ARRL recently conducted a survey of the current digital modes being used on HF and it really is interesting to see the way that Amateur Radio is now travelling and where the Computer is now playing a major roll. The following is just a brief synopsis. The full story is available in January 2001 "QST".

RTTY

Is the grand daddy of HF digital. Once a cumbersome teleprinter machine that clacked and clacked, today it has been converted to simple computer operations. It is still very popular, but now driven by computer. It is not error free.

AMTOR

(Amateur Teleprinting Over Radio) Enjoyed widespread popularity from about 1983 through 1991. It's distinctive chirp was well known on the HF bands. It has an advantage that it is error free as it requires an acknowledgment from the receiving station. You need a fast switching transceiver for this.

PACKET

Has been in existence since the early 70's and really came into its own in the mid 80's. It too is error free, but does require a reasonably quiet band to function efficiently. It really shines on VHF, especially with networks. One application is APRS (Automatic Position Reporting System) which you can find on the top end of 30m.

FACTOR

Strolled into the limelight in 1991. A combination of AMTOR and PACKET. A robust error-free system. FACTOR II came to air in the mid 90's and today it is used more by the professional people.

CLOVER

Was unveiled in 1993 by HAL Communications. It also came with a stiff price and it is necessary to use a HAL processor.

G-TOR

Was the brainchild of Kantronics. Yet another high performance mode but it meant using Kantronics equipment. It is somewhat uncommon on the ham bands today.

PSK31

Viewed as the high-octane cousin of RTTY. It is not error-free, but offers excellent weak-signal performance. Invented by Peter Martinez, G3PLX, who also brought AMTOR to the Amateur world. In 1999, Peter designed a version of PSK31 that needed nothing more than a basic computer with a sound card. The software is free to the ham community. In 2000, new software packages such as Digipan and WinPSK became available. It is now the number one HF digital mode and only uses a signal bandwidth 31 Hz.

HELLSCHREIBER

This has been around since the 1920's and was used extensively in WW II by Germany. It sounds like a hen scratching in the earth! Today simple software is available to run this from your computer.

MT-63

Pawel Jalocha, SP9VRC, invented this. It is a keyboard-to-keyboard "live" mode operationally similar to RTTY and PSK31. It uses 64 different tones which reduces the amount of redundancy even with heavy interference. Unfortunately it requires a bandwidth of 1 kHz which is not so good on a crowded band.

THE FUTURE

New modes that are already being developed include PICCOLO 2000, THROB, MOSAIC II and others. THROB is a 9 tone MFSK digital mode. So, if you are into HF Digital hammering, there are certainly exciting times ahead! We may even see some appearing on VHF. Which one have you tried?

These need checking for full addresses. Sound Card Software can be obtained from the following web sites.

Blastar Teletype (RTTY)
www.geocities.com/SiliconValley/Heights/4477/

Digipan (PSK31)
www.members.home.com/hteller/digipan/

DSO-CW (CW-RTTY) www.zicom.se/dsp/index.html

Hellscreiber www.IZ8BLY.iz8bly.sysonline.it/

also, www.members.xoom.com/ZL1BPU/software.html

MMTY www.geocities.com/mmtty_rtty

Mix32W (RTTY and PSK31)
www.tav.kiev.ua/~nick/my_ham_soft.htm

MFSK16 and other modes
www.iz8bly.sysonline.it/de/VK2AYD and VK5UE

**Keep up to date
with the news**

**Visit the WIA website
<http://www.wia.org.au>**

Super Regen Receiver

An interesting article on super regen receivers appeared in QEX Sept/Oct 2000. The author was Charles Kitchin N1TEV. The article covers the theory of super regen receivers and offered a number of circuits. The reception of NBFM with a super regen receiver was

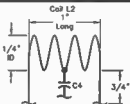
discussed as well as the provision of a mute circuit.

A receiver covering 88 to 180 MHz is shown in Fig 1. The tuning capacitor is a two or three gang unit salvaged from an FM receiver. To receive NBFM the quench waveform pot R5 should be adjusted for best reception of the NBFM

signal. The quench frequency pot R5 should be adjusted so as to allow smooth regeneration throughout the tuning range.

The circuit can be adapted for other tuning capacitors. A little bit of searching at hamfests and similar should turn up something suitable.

This air-core coil was wound over a standard pencil (0.25") and then removed and soldered into place. Suspend L2 up about 3/4" above the ground plane. Keep L2 and L3 away from other objects.



3.5 turns #14 AWG Solid Copper Wire.
Solder C4 at Center of Coil

Band	Frequency
A	88 - 150 MHz
B	120 - 180 MHz

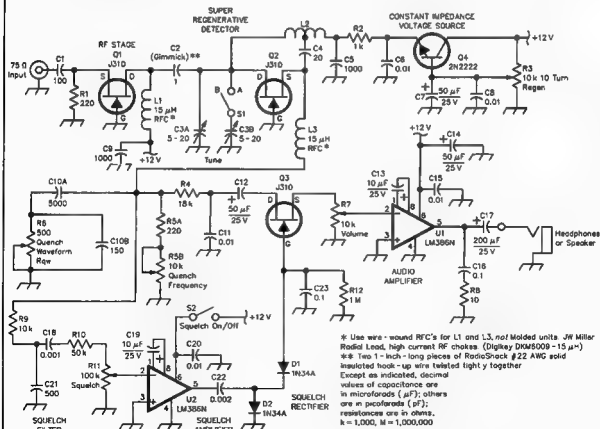


Fig 1. Two Band 88-180 MHz Super Regen Receiver.

Resonant Trap Baluns

In the Tech Notes column of Peter Bertin: K1ZJH in QEX Sept/Oct 2000 a simple method of constructing tuned coaxial baluns was presented by Rick Littlefield K1BQT.

The tuned trap balun is made by winding a coil out of the coax feedline near the feed point and then resonating it with capacitors. The tuned circuit so formed has a high impedance which blocks any current trying to flow down the coax outer. This is a pretty effective

balun. The balun circuit is shown in Fig 2, which shows how the tuned circuit blocks common mode currents on the coax outer.

Construction of the balun is shown in Fig 3. The coax is wound on a PVC form with the resonating capacitor string inside for weather protection. The PVC pipe is given as 2 inch ID thin wall Schedule 40 PVC "pressure pipe". This should have a local equivalent and a browse through a plumbing supply

should provide something suitable.

The capacitors are all silver mica and should be at least 500 volt rating. This should be adequate for a normal 100 watt transceiver, a 400 watt linear would require higher voltage capacitors and 1000 volt rating capacitors would be appropriate. Trap resonance can be checked using a Grid Dip Meter.

The Data for the Balun is given in Table 1.

Table 1. Component Data for HF Trap Baluns

Band	Turns	Capacitors	Hole Spacing	RG58 Length.
80	28	5 x 470 pF	5 1/8 inch	19 ft.
40	13	5 x 330 pF	2 9/16 inch	9 ft 6 inch
30	10	4 x 200 pF	1 15/16 inch	7 ft 6 inch
30	10	6 x 300 pF	1 15/16 inch	7 ft 6 inch
20	9	4 x 100 pF	1 3/4 inch	7 ft
20	9	6 x 150 pF	1 3/4 inch	7 ft
17	7	5 x 120 pF	1 3/8 inch	5 ft 6 inch
15	6	5 x 100 pF	1 3/8 inch	5 ft
12	5	5 x 100 pF	1 inch	4 ft 6 inch
10	4	5 x 100 pF	13/16 inch	3 ft 6 inch

All Capacitors are 500 volt Silver Mica.

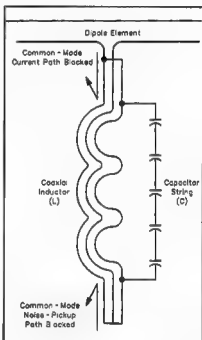


Fig 2. Trap Balun. Tuned circuit provides high impedance blocking path.

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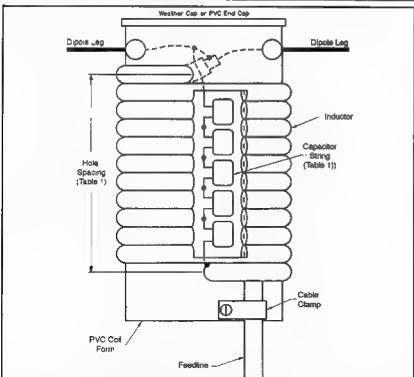


Fig 3. Construction of trap balun. PVC Cap provides weather protection. Capacitor string is installed inside the form.

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The Whistling Whip

This is an item submitted by Rodney Champness VK3UG concerning a problem he experienced with Aeolian Vibrations and his cure. Aeolian vibrations occur due to air movement over a structure which causes vibration to occur. In Rodney's case this was a whistling mobile whip.

Here is Rodney's experience.

A number of amateurs who want good VHF mobile performance and are game enough to do it, drill holes in the centre of the roof of their vehicle and mount an antenna.

On some vehicles at speeds around the 100 km/h mark (more or less) a whine/whistle is heard in the vehicle due to the steel whip antenna vibrating in the fast moving air. It can be VERY annoying.

In many cases it can be largely overcome by a small modification to the antenna. In the case of my quarter wave two metre whip, I have put a "vibration damper" near the end of the whip. This consists of approximately 9 mm diameter plastic sleeving. This is slipped over the antenna and taken down 25 to

30 mm (in my case) from the top to prevent detuning of the antenna. The gap between the sleeve and the whip is loosely filled with soft foam plastic, but filled sufficiently tightly that it doesn't move. Push it in with a screwdriver or something similar. If it is packed too tightly the vibration damping effect will be negligible.

Happy whistle free mobiling from Rodney Champness VK3UG.

BY

Silent Key

Les Osborne, VK3AAO

It is with deep regret that I have to advise that Les Osborne VK3AAO has become a silent key. Les came to amateur radio on retirement. He joined the WIA on 24/01/61 (Associate Cert 1313). He studied for the exams passed the Morse first up and had two goes to pass the theory. His first QSO was on 14/2/65 with VK5GP on 40 metres AM at 1610 GMT. His last on 5/01/01 on 14.130 MHz at 11.32 GMT with Ralph VE3PBR. He died on 6/01/01 He would have been 93 on 25.03/01

Les built his own gear like many other amateurs in the 60s and went mobile. With his wife Esma he toured the Conventions and Field Days. He got to meet face to face many of the people he had first met on air. Many Hams came and stayed with Les and Es from both inter state and overseas.

I first came across Les on the shortwave band as I tuned around. This led to a visit and I was on the way to get my licence with Les as mentor and friend. He helped many others get



P.O. 16, BENALLA 3672
VICTORIA, AUSTRALIA

VK 3AAO

QSO With DATE GMT FREQ RST MODE QSL

Remarks:

73's LES OSBORNE
110 Arundel Street

into Amateur Radio. I have much appreciated the continuing friendship I had with Les.

Ham Radio helped Les through the loss of his wife Es on 8/01/98 and gave him a continuing support group. It was one of these friends who alerted me to Les's absence from the Saturday morning sked on 6/01/01.

Les will be missed by Hams in Australia and overseas. He spent thousands of hours on the air and kept meticulous logs. The last entry on 5/01/01 was number 107,992.

Fallbearers at the funeral were Bob Bird VK3GEB, Ron Burns VK3COP, Warren Heywood VK3WH and Ray Wales VK3RW.

Ray Wales VK3RW

AR Beyond Our Shores

David A. Pilley VK2AYD



This is a pilot run. The objective is to bring to you each month, some of the happenings (and trivia) from other Amateur Radio Society Journals overseas. David, VK2AYD, has offered to write this, but he only has access to "QST" and "Radcom". If you feel such a column would be of interest and you have access to Journals from other Societies he would be more than pleased to hear from you each month. Easily reached on davpil@midcoast.com.au

House Hunting U.S. style.

When people go house hunting they often stop in their car outside a prospect house and make a quick judgment based on the view from the outside, not knowing what is on the inside. In the USA they have allocated 1600 kHz to the Real Estate industry and you now have "Talking Houses" which transmit with a maximum power of 100 mW and are said to have a range of about 450 metres. The transmission describes the better points of the property. So you can now sit in your car and listen to the sales pitch.

So tune around 1600 kHz at night - you may pick up a bargain....!

FCC gets tough

The January QST reported two cases of Radio Amateurs being fined for unlicensed operation and causing interference on repeaters. In one case in California, the Amateur is to serve 3 months in jail and in Texas a \$US8,000 fine was given for malicious interference. The fines followed a FCC

investigation that involved the use of direction-finding equipment to trace the signals that came from vehicles.

In the U.K. they have the AROS (Amateur Radio Observation Service) which acts on behalf of the RSGB and works closely with the RA (Radiocommunications Agency). It is responsible for observing operating practices and activities on the amateur bands. AROS helps the RA to make its case against licence abusers. So remember - Big Brother is watching - somewhere.

Space Station Alpha

An interesting editorial in January RadCom concerning applications being invited from amateur radio club stations at schools to make scheduled contacts with the astronauts on board "Space Station Alpha". Are there any schools in Australia taking part in these contacts? You may not be aware that Cmdr. William Shepherd, KDSGSL, made the first amateur radio contacts from the ISS on 17 November.

USA New Morse Exam

Effective from July 1, 2001 there will be two standard methods used in the USA. One is by answering seven out of ten fill-in-blank format questions; or by achieving a character count of at least 25 characters copied correctly on a one-minute-solid-copy review. All Morse exams will be transmitted using the Farnsworth method of sending characters. That means the characters will be sent at between 13 and 15 WPM, with considerable spacing between characters to balance out the message to the prescribed speed of 5 WPM.

ITU, IARU New Publication

The International Telecommunication Union and the International Amateur Radio Union have agreed jointly to produce an ITU publication made up of excerpts relating to amateur radio from other ITU publications. It will also be available on CD-ROM. This will include relevant excerpts from the International Radio Regulations as amended by WRC-2000 in Istanbul last year.

Have you tried...

•DXing•microwaves•CW•high speed data•ATV•operating portable•slow scan
•TV•QRP•contesting•homebrewing•AM•UHF•packet radio•foxhunting•building
repeaters•JOTA•160 metres•publicising amateur radio?

Your fellow WIA members are interested in your experience

and send your article to

The Editor,
Amateur Radio
34 Hawker Crescent
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ABOUT
IT

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High Performance VHF/UHF Base Station Antennas

Diamond base station antennas offer outstanding quality and exceptional value. These stacked collinear types provide high gain, wide bandwidth and a low radiation angle for extended range. The fiberglass reinforced polyester outer radials are gasket sealed provide excellent all-weather operation, and compact ground-plane radials are supplied. Stainless-steel mounting hardware ensures a long, trouble-free life. Supplied with instruction sheets for easy set-up. Made in Japan.

2m/70cm X-50A

Frequency: 144-48MHz,
430-450MHz
Gain: 4.5dB on 2m,
7.2dB on 70cm
Max power: 200W
Length: 1.7m,
max wind 60m/s
Type: 6/8λ (2m)
3 x 5/8λ (70cm)
Connector: SO-239 socket
D-4835



SAVE \$25 \$119

6m 1/2 Wave Base Antenna

A rugged Australian-made vertical antenna designed to cover the 51 to 54MHz range, with minimum SWR around 53MHz. Built using high tensile T81 grade aluminium, it's just 2.9m long with a sealed base section and 100W minimum power rating. Complete with mounting hardware.

D-4835

\$69⁹⁰

2m Heavy Duty Base Station Antenna

For use where long-range omni-directional 2m band (144-148MHz) coverage is required. This 3.4m long 1/2 wave over 1/2 wave corner vert. ca. antenna provides approx. 5dB gain and is housed in a very tough single section fibreglass radome for all-weather protection. The strong aluminium base section is fitted with an N-type socket in its base for coax cable connection.

D-482

IBENELEC

\$139⁹⁰

Digitor 2m 30W RF Power Amplifier

If you use your 2m band FM handheld at home or in the car, but find that 2-3W RF output isn't enough for reliable communications, then this compact 30W RF amplifier may be the answer. It works with inputs from 0.5 to 5W and produces up to 30W output with just 3W input. A switchable 12-15dB gain low-noise GaAs FET receiver pre-amplifier can be selected for improved receiver performance on less sensitive handhelds when being used in RF quiet areas. The amplifier offers a large heatsink for extended duty-cycle transmissions, fused DC power lead, and SO-239 input/output connectors. Frequency range 144-148MHz, FM only. Size: 100 x 36 x 175 (WHD).

D-2510

\$99⁹⁰



FT-8100R 2m/70cm Mobile

The Yaesu FT-8100R is a state-of-the-art 2m/70cm band mobile transceiver that combines high power and a highly versatile memory system with an excellent wideband receiver and solid construction. Its US MIL-STD-810 shock and vibration rating is your assurance of years of reliable operation. Includes hand mic, mounting bracket and fused DC power cord.

Features

- 198 memory channels
- 1200/9600 baud packet socket
- Inbuilt antenna duplexer
- Inbuilt crossband repeater facility
- Dual receive capability (VHF/UHF, VHF/VHF, UHF/UHF)
- Optional remoteable front panel

Frequency range: Tx 144-148MHz,
430-450MHz
Rx 110-550MHz,
750-1330MHz
(less cellular)

Output power: 2m: 50, 20, 5W
70cm: 25, 20, 5W

D-3114

\$1086

2 YEAR WARRANTY

BONUS X-50A 2m/70cm base station antenna valued at \$119.



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3-15V 25 Amp DC Power Supply

Our highest performance power supply with current up to 25 Amps ICAS at 15 Volt, 20 Amps continuous at 13.8 Volts, and lower currents at lower voltages. It also has front panel metering, plus high-current banana-style and low-current output connections for extra flexibility. An internal heatsink and thermally-switched fan provides cooling without protrusions in the metal case (which measures 320 x 150 x 145mm). Don't confuse this power supply with look-alikes, it's been specially modified to DSE specifications for more reliable long-term operation, and uses a rugged 50 Amp bridge rectifier and a trifilar-wound transformer. We've also provided extensive overload protection through dissipation-limiting circuitry for the pass transistors, a 30 Amp instantaneous current limiter, quality AC mains circuit breaker, a transformer thermal fuse and fused auxiliary secondary winding.

D 3800

SAVE \$50 \$249



Yaesu FT-90R 2m/70cm micro mobile

Another engineering breakthrough from Yaesu - a tiny dual band mobile rig with high power output, a remoteable front panel and a rugged receiver front-end. The FT-90R provides 50W RF output on the 2m band as well as 35W output on the 70cm band, a solid die-cast casing with microprocessor controlled cooling fan for reliable operation, and a large back-lit LCD screen, all in a package measuring just 100mm x 30mm x 138mm.

Also includes:

- Wide dynamic range receiver for greatly reduced pager breakthrough.
- Huge receiver coverage - 100-230, 300-530, 810-999 975MHz (Cellular blocked).
- 180 memories and a variety of scanning functions.
- Built-in CTCSS encode/decode, battery voltage metering.
- Designed for 1200 and 9600 baud packet operation.
- Tiny remoteable front panel (requires optional YSK-90 separation kit)
- Includes MH-42 hand mic, DC power lead, and easy to follow instructions.

D 3112 **2 YEAR WARRANTY**

AMAZING VALUE!

YAESU \$699

YSK-90 Front Panel Separation Kit

D 3117

\$144



Yaesu FT-840 HF Mobile **ONLY 10 PCS AVAILABLE AT THIS GREAT CLEARANCE PRICE!**

An ideal first rig for home or vehicle use, the economical Yaesu FT-840 covers all HF bands from 160-10m with 100W PEP output, and provides continuous receiver coverage from 100kHz to 30MHz.

The FT-840 provides:

- SSB/CW/AM operation (FM optional)
- 100 memory channels, two independent VFOs per band
- Large back-lit LCD screen, uncluttered front panel
- Effective noise blanker
- Variable mic gain and RF power controls
- SSB speech processor for greater audio punch

2 YEAR WARRANTY

- IF Shift & CW Reverse to fight interference
- Dual Direct Digital Synthesizers for cleaner TX/RX operation
- Compact case size of just 238 x 93 x 243mm (W.H.D.)

D 3275

YAESU

HF module \$109
suit FT-840
D 2932



SAVE \$200 \$1383

Some units may be shop soiled or missing packaging, but full warranty applies.

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Other stores can place orders on a deposit-paid basis.
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Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. One councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcasts schedules and subscription rates. All enquiries should be directed to your local Division.

Broadcast schedules All frequencies MHz. All times are local.

VK1 Division Australian Capital Territory
GPO Box 600, Canberra ACT 2601
President Gilbert Hughes
Secretary Peter Kloppenburg
Treasurer Ernest Hosking

VK1GH
VK1CPK
VK1LK

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 1066, Parramatta 2124)
(Office hours Mon-Fri 1100-1400)
Phone 02 9699 2417
Web: <http://www.ozemail.com.au/~vk2w/>
Freecall 1800 817 644
e-mail: vk2w@ozemail.com.au
Fax 02 9633 1525

President Terry Davies
Secretary Barry White
Treasurer Pat Leeper

VK2KDK
VK2AAB
VK2JPA

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue & Thur 0930-1500)
Phone 03 9885 9261
Web: <http://www.vic.waia.com.au/~wvawic/>

e-mail: wvawic@alphalink.com.au

President Jim Linton
CEO Barry Wilton
Secretary Peter Mill

VK3PC
VK3XV
VK3APO

VK4 Division Queensland
PO Box 199, Waverley Heights, Qld. 4012
Phone 07 3221 9377

e-mail: qswa@wslq.powerup.com.au
Fax 07 3286 4929

Web: <http://www.wslq.org.au/~vk4/>
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VK5 Division South Australia and Northern Territory
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Web: <http://www.sant.waia.org.au>

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VK5NB
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VK5NX

VK6 Division Western Australia
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Phone 08 9351 6873

Web: <http://www.inet.net.au/~vk6wa/>
e-mail: vk6wa@inet.net.au

President Neil Penfold
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Treasurer Bruce Hedland-Thomas

VK6NE
VK6ZLZ
VK6OO

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 4234 3553 (BH)
Web: <http://www.tasnet.edu.au/~tasnet/vk7wa/>
also through <http://www.wslq.org.au/~vk7wa/>
e-mail: batesjw@netspace.net.au

President Phil Corby
Secretary John Bates
Treasurer John Bates

VK7ZAX
VK7RT
VK7RT

VK1WV: 3.590 LSB, 146.950 FM each Sunday evening from 8.30pm local time. The broadcast text is available on packet, on Internet aus.radio.amateur.misc newsgroup, and on the VK1 Home Page <http://www.vk1.waia.ampr.org>

Annual Membership Fees. Full \$77.00 Pensioner or student \$63.00. Without Amateur Radio \$49.00

From VK2WV 1.845, 3.595, 7.146*, 10.125, 14.180, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX newscast news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup aus.radio.amateur.misc, and on packet radio.

Annual Membership Fees. Full \$78.00 Pensioner or student \$61.00. Without Amateur Radio \$47.00

VK3BWI broadcasts on the 1st and 3rd Sunday of the month at 8.00pm. Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3RDU 438.225, and VK3RMM 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full \$78.00 Pensioner or student \$61.00. Without Amateur Radio \$47.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.680 MHz FM (rpt), 147.000 MHz, and 438.525 MHz (in the Brisbane region and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605 SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full \$85.00 Pensioner or student \$72.00. Without Amateur Radio \$56.00

VK5WV: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide, (NT) 3.555 USB, 7.085 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday 3.585 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday

Annual Membership Fees. Full \$82.00 Pensioner or student \$68.00. Without Amateur Radio \$54.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busseton, 146.900 (R) Mt William (Bunbury) 147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz country relays on 146.900, 147.000, 147.200, 147.250 and 147.350 MHz. Also in "Real Audio" format from <http://www.vk6wia.com.au>

Annual Membership Fees. Full \$69.00 Pensioner or student \$59.00. Without Amateur Radio \$38.00

VK7WV: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.825 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full \$88.00 Pensioner or student \$75.00. Without Amateur Radio \$55.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz)

VK1 Notes

Forward Bias

One of the regular events happening every year is the Annual General Meeting (AGM). Leading up to it is a busy time for the committee members as the annual report must be prepared for presentation to the members. This report contains descriptions of all the significant events that the Division as a whole was involved in. It also gives members an overview of what was achieved and how. The AGM provides an opportunity for a change in the management of the Division as some committee members do not re-nominate, thereby giving other members a chance to get on the committee. The Division's constitution allows nine positions i.e. President, two Vice-Presidents, Treasurer, Secretary, Federal Councillor,

Alternate Councillor, and two ordinary members. Some committee members have a secondary responsibility. For example: Chairman of the ACT Technical Advisory Committee, WIGEN Coordinator, Membership Secretary, and Education Officer. However, it does not stop there. There are other portfolios that are taken care of by ordinary members. One of these is Public Relations Officer; others are Deceased Estate Officer, QSL Managers in/out, Broadcast Officer, and Intruder Watch Officer. Many of our members support the committee and provide services to all of us in different ways. During last year's Novice course, some of us demonstrated skills in teaching electronics, Morse code, and

Peter Kloppenburg VK1CPK
regulations. We are still looking for volunteers to fill positions such as ALARA and JOTA liaison, contests and awards officer, and Clubhouse activity coordinator. More about that at the AGM. So, if you have an idea and need resources, let us know. If you want to become a committee member, you must fill in a nomination form. These are available from the Secretary by calling him on 6231 1790 or pkloppen@dynamite.com.au if less than nine nominations have been received by the time of the AGM, nominations will be called for then. The AGM will be held at the Griffin Centre, Civic, Canberra City, on Monday, February 26, 2001, Starting at 8 pm sharp!

VK2 Notes

Annual General Meeting

Firstly, a correction to the date published in the January AR - we inadvertently chose Easter Saturday so the date has been changed to avoid the Easter weekend and the nomination date adjusted to match the change.

The VK2 Annual General Meeting will now take place on Saturday 21 April 2001, at Amateur Radio House 109 Wigram St Parramatta, commencing at 11.00 am.

Nominations for Council and "Motions on Notice" must be received at the office not later than 12 noon on Saturday 10 March 2001. The necessary

nomination forms will be available in February from the office.

This is your chance to have a say in the running of this Division. New blood is needed on the Council to pursue aims to the betterment of Amateur radio - to protect our frequencies, and draw younger people to the hobby. The old guard is fading fast, it's time for the new generation to take a hand.

Remember to make your ballot count, by reading the instructions carefully and marking your choices for nine councillors.

The Divisional office reopened on 6th

By Pat Leaper VK2JPA
January and has a plentiful supply of 2001 callbooks. These can be ordered by phone or mail by credit card or cheque. Contact the office for further details on 02 9689 2417.

Not much else to report this month following the holiday break. Your VK2 Notes writer spent three weeks in Tasmania and Queensland and has come back with a Tasmanian cold after chilly Christmas weather. I hope you all had a beneficial holiday break and are ready for the coming year.

That's it for this month - see you next time.

VK3 Notes

Website www.wiavic.org.au Email wiavic@wiavic.org.au

By Jim Linton VK3PC

Annual matters

The WIA Victoria Council is soon to finalise the 2000 year reports to members, accept the audited financial accounts, and set the meeting date for the annual general meeting.

Members will be advised of the date of the AGM and receive the usual annual reports.

RD Contest

Firstly, congratulations to VK4 for being declared the winner of the Remembrance Day Contest 2000 - see full details on page 42.

WIAQ can be proud of the achievement, and under the current rules of the contest will probably be able to build on that success to see VK4 win again next year.

Sadly, the efforts VK3 were insufficient. However, enormous individual and group enthusiasm displayed during the RD Contest 2000 is appreciated, and collectively the disappointment is felt. To those VK3 clubs and individuals who were winners in the various categories, congratulations, well done.

WIA 90 Award

A reminder about the 90th birthday of WIA Victoria. Members are encouraged to join in the celebration and qualify for a special award through personal achievements.

The details of the award appear on the WIA Victoria website, and are available on request. The mandatory requirements include submitting an entry in the RD Contest 2000, and making contact with nine other WIA Victoria members (not during a contest).

There is also a list of extra optional achievements for qualification.

Entries for the WIA Victoria 90 Award close on 30 June 2001. It is available at no charge.

WIA Exam Service

As mentioned about 12 months ago, the WIA is planning to change the operation of the WIA Exam Service, to make it more efficient, reliable, and accountable.

After an extensive consultation process, the WIA is about to re-shape the WIA Exam Service to better meet the needs of the amateur radio fraternity, and the implicit requirements of the Australian Communications Authority. Many on the list of examiners have not been active for some time. This is extremely frustrating to those trying to find a place to sit an exam.

The WIA is anticipating writing to all listed examiners inviting them to re-apply

to continue as an examiner if they wish under next rules and conditions. These will be fully explained to each examiner. Briefly, the following is proposed

- Only WIA members may be examiners, except for remote locations where a WIA member is not available, and in limited other circumstances.
- Examiners will be appointed for a fixed term.
- Exam centres will be nominated. Exam centre coordinators will be appointed.
- A role for WIA Divisions in examiner appointments.

VK4 Notes

QNEWS

Down The Sewer - VK4 Style.

BTC (BearCom) of Brisbane have solved a communications problem in the State capital of Brisbane, by taking a few well chosen steps backwards, to move forwards. To enhance safety for the operators of machinery currently boring under the city in the construction of a multi-million dollar sewer tunnel, they've turned to the leaky feeder cable antenna. This gives continuous radiation of signal along the tunnel and reception is much improved over isolated conventional antennas. The system is continually extended as the tunnel progresses and is coupled to the topside system so all workers are in constant radio communication with one another.

Brisbane Hit By Snowstorm!

Hundreds of television viewers are finding summer snow on their screens since the introduction of digital transmission, the Federation of Australian Commercial Television Stations has reported. Around 1500 people per day or an increase of about 50 per cent compared to the days before Mondays official start to the VK digital system in mainland capital cities.

Unfortunately Brisbane was worst affected, where the new digital channel for SBS is 36, a channel commonly used by viewers for their video cassette recorders. The interference from digital transmission appears as snowing or a sort of sparkly effect. Outside of Brisbane, the problem was much less frequent, and even in the Queensland capital, the interference was usually

easily fixed by reprogramming the VCR to use a channel other than 36.

U3A

No, not a new callsign from the Soviet area, this stands for University of the 3rd Age. Are you are interested in Amateur Radio, Citizens Band, Short Wave Listening, Scanning or the Internet? Then you can learn Amateur Radio with the U3A Amateur Radio Group, which meets in the Redcliffe district every Tuesday between 9.00am - 12noon.

Contact Kevin VK4AKI the Coordinator / Facilitator by Packet as VK4AKI@VK4ITM or on EMAIL kevjon@bit.net.au or even phone Kevin 3880 1112

A person is in the Third Age in retirement or on completion of the responsibilities of parenthood. The Third Age is the part in one's adult life when one has the time to devote to interests other than earning a living and raising a family. U3A has sixty-two campuses on the East Coast of Australia, seven in Queensland, forty-eight in Victoria, six in New South Wales and also one can be found in South Australia. So look for one in your area and investigate some new scope in continuing to learn, as you grow wiser.

Repeater on 70cm up and running

The Tablelands Radio and Electronics Club (TREC) has their new repeater up and running in Atherton. It is on 439.500MHz, with a negative 5 MHz split.

Bill VK4WL, John VK4TL and Dale

VK4DMC erected an antenna mast at the clubrooms in downtown Atherton and put the new repeater on air, in test mode. It is performing well and can be worked from many points on the Tablelands. After a short time operating at the clubrooms the repeater will be relocated to a permanent location on Bones Knob above Tolga, where it should give excellent coverage to the Tablelands and parts of the coast in the Cairns vicinity.

Radio Scouting

Have YOU forwarded all the paperwork back to your leaders and forwarded stories of your JOTA activities to the National Scout Coordinator, VK4SGW? Hopefully the answer is yes.

Just to see what others have done here's a brief outline of JOTA activity from Brisbane's Bayside Club as presented in their December Newsletter.

JOTA was held at Karingal, over on Macleay Island and also at Kindilan which is 87 hectares of bushland near Redland Bay and is the site where Guides spent JOTA under the watchful eyes of VK4's BAY and DCM who manned VK4GGK. Macleay Island also had a Guides activity staffed by VK4's TJE and XR looking after VK4GGM. One contact was with GB2GP the UK home of Scouting, a contact arranged by VK3CE/4 Chris Edmondson of RadioMag fame.

Karingal saw many Scouts trying for their communication Badges. On hand were VK4's JPD, KF, TY, SOA, and WST. A great club activity by these 9 members of Bayside Club, well done!

What's in a name.

Brian VK4BBS was after the origin of the word 'Shack' with regard to we Amateur Radio Operators. Only one response, that from Blue VK4BBL who told us huts were added to the decks of ships in the early days, the days before shipbuilders knew of 'wireless' and these huts were known as 'shacks'. This information came direct to Blue from an old Scottish mariner. In the latest Summerland News Email edition, John VK2JWA picked up

the item and writes "Blue is correct in that such huts were added to the decks of ships. BUT these were called 'Marconi Cabins', supplied as part of the wireless installation. 'Shack' is not a marine term, not even slang."

What is the earliest written reference to 'shack'?

VK2JWA says he has many manuals dating from the 19th Century until now, but none mention the term 'shack'. Not until the 1933 ARRL Handbook, Ch 13,

'Assembling the Amateur Station' where it says "Some fortunate amateurs are able to provide a special 'shack' away from the house." The quotes would indicate a slang or not normal word. Can someone with a pre 1933 edition ARRL Handbook push this date back any earlier? This 1933 reference is 15 years after 'Marconi Cabins' probably disappeared. The usage is most likely from continental America.

73's from Alistair

VK6 Notes

Notice of the Annual General Meeting for 2001

It is hereby notified that the Annual General Meeting of the Wireless Institute of Australia (Western Australian Division Incorporated) will be held from 10am on Saturday 7th April 2001.

The venue for this year's AGM event will be the Dining Room at CWA House 1174 Hay Street West Perth and the agenda will be:

1. Consideration of the Council's annual report
2. Consideration of the financial report
3. Consideration of other reports
4. Election of office-bearers (President, Vice President and seven other Councillors)
5. Election of two Auditors
6. Appointment of a Patron
7. General business which has been duly notified.

Notices of Motion for the AGM must be received by the Secretary not less than 42 days prior to the meeting (ie by 23rd February 2001), and must be signed by

at least three members.

The Secretary's postal address is WIA WA Div. PO Box 10 West Perth WA 6872.

Nominations of candidates for election to Council must be received by the Secretary, in writing, not less than 42 days prior to the meeting (ie by 23rd February 2001), with an intimation that the candidate is willing to act.

A candidate may submit a statement, not exceeding 200 words, outlining his or her experience and case for election. Each nomination shall be signed by two members proposing the candidate. Candidates must possess a current amateur licence.

Any financial member who is entitled to vote may appoint a proxy, who must also be a financial member who is entitled to vote, to speak and vote on his or her behalf. Written notice of such proxy must be received by the Secretary prior to the meeting, and be in the following form:

I (full name), a member of the Institute, hereby appoint (full name), also a member of the Institute, to act for me as my proxy, and in my name do all things which I myself being present could do at the meeting of the Institute held on the 7th April 2001.

Signed:

Witness: Date:

Lunch will be provided in the form of sandwiches, cakes, biscuits, coffee and juice.

Council hope that there will not be a problem filling the quorum by 10am, and trust there are sufficient amateurs left who still care enough to come along to the AGM. It is envisaged that lunch will be at about 12 midday and then there could be up to 2 hours of discussion on amateur radio and where it is going in the 21st Century. Will VK6UU might bring his Tesla Coil along for a demonstration.

VK7 Notes

QRM – Tasmanian Notes

The festive season is well and truly passed and our three branches are looking at our programmes for this year. Our branch annual meetings are in February with the Divisional annual meeting in Launceston in March. At our January meetings members were urged to put their names in the hat for selection as executive members of their branch for the year and indications are that we will have very capable executives in all branches. Someone said that the best new year resolution was to have no resolutions but we all must redouble our

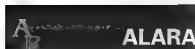
recruitment and training efforts. It's nice to say that we have the highest percentage of amateurs as members of any state but that percentage is still far too low.

The east coast members forsook Scamander as the venue for their annual January "bash", instead spending the weekend camped at the old mining town of Mathinna. Your correspondent missed it but reports give a glowing picture of a great weekend of fellowship.

The North-west branch through secretary Tony, VK7AX, and Barry.

VK7FR have set up a new weekly program, "Spectrum" using audio clips of amateur doings from all around the world. This is not in any way meant to rival our official Sunday full-state broadcast and was originally only on our local north-west repeaters. The northern branch requested that they be allowed to rebroadcast on their Mt. Barrow repeater and this is now being done. We congratulate these two members on a very professional format they are having a lot of fun doing it too!

Cheers for now Ron, VK7RN.



Christine Taylor VK5CTY
VK5CTY@VK5TTY or
geencee@picknowl.com.au

Corrections

It would appear that in my enthusiasm to report on the very successful Expedition to Norfolk Island that I made a few errors in callsigns etc.

The most important error is in the callsign of the station itself. This was AX9YL not VK9YL. As the expedition was so close to the time of the Olympic Games it is very appropriate that the "AX" prefix was used.

I am sorry to have moved Biny and Merv from ZL2 zone to ZL1. Biny holds the callsign ZL2AZY, and Merv holds ZL2AVY. I got Elizabeth right once and wrong the second time, sorry Elizabeth VE7YL, but I hope you enjoyed being VK7YL for a short time, at least.

My apologies, also to Mio JR3MVF, Kirsti VK9NL, and Lars SM5CAI for giving them the wrong callsigns.

ALARA and BYLARA Awards

I hope some of you took the opportunity offered by the ALARA Contest in November to add to the number of contacts with ALARA members so you have been able to apply for the beautiful ALARA AWARD. You only need 10 YL contacts though they do have to be from at least five different states - this is why the Contest is a good time to make those extra contacts.

If you have made the requisite number of contacts please have two other amateurs sign your log and send it along to Jean Shaw, XYL of VK3CMS QTHR the callbook, along with just \$5. I am sure you will be pleased to hang the certificate on your "brag wall".

To gain the BYLARA AWARD you need to contact at least 15 YL members (it must include at least 10 British (G, GM, GW, GI, GJ, GU) calls. Gill G0WAW is the Awards Manager.

All bands and all modes are acceptable and the awards are open to YLs, OMs, and SWLs. Contacts might be able to be obtained if you listen in to some of the regular nets. There are 40 metre nets on Wednesdays and Fridays at 11.30 GMT or Summer time, on 7.065+/- QRM

Our New Junior Vice-president

We are very pleased to have Susan VK7LUV to fill this position on our executive. It has been vacant since the last AGM. Susan is an active amateur, as the reports of her certificates in last months AR show, as well as an active Mum to young children. Isn't it always a good idea to ask a busy person to do something? Somehow they seem to find the time. Welcome aboard, Susan.

Many Aspects Of Amateur Radio Remain The Same

Reading a 1955 copy of CQ1 came across this item. I think we can say things have not changed very much in 45 years.

We still use 2-metres to keep in touch with family and friends from our

hospital beds, we still introduce our children to amateur radio as soon as possible — though not all of us do it at only 8 hours old! We still have some families in which both husband and wife hold amateur licences and we still operate mobile as well as from fixed stations

This particular news item also included an advance notice of the 1st International YL Convention to be held on June 24th-27th 1955 in Santa Monica California. That was probably the very first ever International gathering of YLs. If anyone has a copy of the CQ from later that year, which holds a list of attendees at that International meeting a photocopy of the pages would be very much appreciated. It would be interesting to know how many YLs travelled from overseas to meet their counterparts in the US.



KN6HRP, Laura Lee Townsend of Santa Barbara, introduced 10 hr old son Peter to OM KN6ELR at home via 2-meter rig at her hospital bedside. In all, they had about 20 QSOs and Laura Lee rag-chewed with the 2-meter gang as far away as San Diego (200 miles). Now both K6ELR and HRP are active on 2-meter Mission Trail Net, work all bands 160 to 10 phone and CW, and also operate mobile on 10. Peter's pediatrician is K6CRJ. Photo courtesy SBRC president K6ATX.

20TH ALARA CONTEST — 11th November, 2000

Gwen VK3DYL	203	Top score overall, Top score VK YL, Top phone score, Top VK3 Alara member
Bev ZL1OS	186	Top DX YL, Top ZL Alara member
Judy VK3AGC	153	
Susan VK7LUV	130	Top VK Novice, Top VK7 Alara member
Elizabeth VE7YL	130	Top VE Alara member
Meg VK5YG	111	Top VK5 Alara member
Alex ZL1BVK	104	Top ZL OM
Bev VK4NBC	92	Top VK4 Alara member
John VK3MGZ	75	Top VK OM
Celia ZL1ALK	74	
Marilyn VK3DMS	74	CHECK LOG

Christine VK5CTY	61	
Trevor VK3PP	55	
Dot VK2DB	49	Top VK2 Alara member
John VK5EMI	40	
Alan VK7JAB	35	
Stan VK3JS	25	
Yohko JA8GIA	24	Top Japan YL non-member

SUMMARY:

VK Alara members	8
DX Alara members	3
DX YL non-member	1
VK OM's	5
DX OM's	1
Total logs	18
Check logs	1

AO-40 returns after a brief absence

The AO-40 control team spent some sleepless nights in the run-up to Christmas 2000. The two metre beacon transmitter unexpectedly stopped functioning on 13th December 2000. A motor 'burn' had been performed just a day or so before and AO-40 had been propelled into its next transitional orbit. The communications problem was of course quite unexpected and it was decided by the control team to allow a planned series of events to occur on board AO-40 before trying to re-establish communication. The team needed to let these 'fail-safe' procedures take their course rather than to immediately try more active recovery methods. In that way as much stored data as possible would be preserved for later analysis. This would allow the mishap to be better studied and hopefully, the cause pinpointed. The study is underway as I write this column. As events unfolded, it fell to Ian Ashley ZL1AOX to send the

re-set command. Happily AO-40 responded and the 2.4 GHz beacon sprang into life on Christmas day 25th December 2000. Since that time Feverish activity has taken place behind the scenes. A series of uploads have taken place to fully reload the flight software and start the diagnostic routines. The present attitude of AO-40 is such that the 2.4 GHz antenna is pointing away from Earth much of the time. We are getting the best squint angles for only brief periods around perigee so the process of collecting data has been a time consuming one. Currently the telemetry is showing that the flight software upload has been successful and we are awaiting the uploading of message block and whole orbit data software. As more and more circuits are tested a clearer picture will emerge of what may have caused the two metre beacon to stop transmitting. As the facts emerge, authoritative reports are being posted to the AMSAT bulletin board by Peter Guelzow DB2OS. The procedure of recovering full control over AO-40 is a delicate one and will require the collective expertise of the entire command team to be brought to bear. Please do not take any notice of speculative writings that may appear on bulletin boards or on the packet radio networks. Regular news items will appear on the AMSAT bulletin board, the AMSAT News Service and on the various AMSAT web pages. Official bulletins will be signed by either Peter Guelzow DB2OS or Karl Meinzer DJ4ZC. In the meantime the early confusion regarding object numbers and the true position of AO-40 has now been resolved and the satellite has been positively identified by NASA-NORAD. Authoritative keplerian elements are appearing on the various distribution services signed by Ken Ernanides N2WWD.

The latest report from Karl was distributed just in time for inclusion in this column. Here is his report.

Greetings,

Since my report from late December, command stations have implemented the strategy which I had outlined (in that report). The first priority was to determine which command-uplink channels were available. This work was difficult, very time consuming (and for the satellite) somewhat dangerous due to the unknowns. The command stations did a magnificent job! Due to their combined efforts I can report the following findings:

1. After some blind transmissions to test the omni-antennas around apogee (that failed to produce a response), the scheduler was activated and programmed in such a way as to prevent lock-out. This strategy turned out to be very prudent and the scheduler-operation went smoothly and resulted in no additional anomalies.
2. The scheduler then took AO-40 through a number of modes, which allowed the P3D team to determine the following:
 - a. V, U and L-1 receivers work
 - b. V, U and L high-gain antennas work
 - c. U and L low-gain antennas do not work
 - d. the status of the V-band low-gain antenna has not been finally determined. Apogee blinds tests are in progress as I write this to accurately determine the status of this antenna.
3. The V-band transmitter was operated for one MA-unit. It demonstrated a marked temperature increase, but no signal was heard. This was a quick-look test and this result should not be considered final. Further tests will be necessary (including the need to determine if the matrix was set properly). These tests will have to wait until the spin rate is reduced to ensure that the satellites heat-pipes will be able to

The AMSAT group in Australia.

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net.

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000utc with early check-ins at 0945utc. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900utc with early check-ins at 0845utc. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141, Adelaide, SA. 5001.
Graham's email address is:
vk5agr@amsat.org

handle the dissipation for extended periods

4. Magna-torquing was started to reduce spin and the first indications are a loss of around 0.5 rpm - roughly consistent with theoretical predictions. We can conclude that the system works. In order to use Earth-sensing data, a small additional program needs to be installed which stores data at apogee for later recovery when telemetry reception becomes available.

What's next?

During the next days the attitude control system should be returned to full functionality. It will be used to reduce the spin to a value consistent with heat-pipe operation and also with the requirements to change attitude. These changes are necessary for sun-angle constraints, communication access and also to reduce the effect of our ongoing mass-loss on perigee altitude. Newer model calculations show that the mass loss could be larger than my previous estimates; thus it would be prudent to use the resulting thrust to increase perigee altitude (right now it is decreasing it). Once the spin/attitude situation is under control, we will continue the check-out of other systems (such as):

1. Determine the status of the V-band transmitter (controlled experiments)
2. Determine the status of the U-band transmitter
3. Determine the serviceability of the ATOS (Arcjet) to determine if it can be planned on for a strategy toward an improved orbit
4. Test the momentum wheels to determine if AO-40 can be put into a three-axis mode which would

greatly reduce the impact of the loss of the omni-antennas

Present data so far indicates that although we have lost some systems in AO-40, there has been no further deterioration after the second incident. In particular, if ATOS and three-axis stabilization are still serviceable, AO-40 will still be able to produce a large fraction of the Amateur Radio service expected from it. Personally, I am optimistic and I believe that the command and engineering team stand a good chance of turning AO-40 into an extremely useful Amateur Radio satellite.

73, Dr. Karl Meinzer, DJ4ZC

Doppler shift upon Doppler shift

Since the 2.4 GHz beacon has been operating continuously on AO-40 an interesting phenomenon has become apparent. AO-40 is quite a large beast. It is hexagonal in shape, more than 2 metres across and almost a metre thick. The hexagonal "top and bottom" surfaces house the antennas, the cameras, the earth/sun-sensors and of course the motors. It so happens that the 2.4 GHz antenna is situated off-centre and well out towards the perimeter of the spaceframe on one of the hexagonal surfaces. At present the spacecraft is spin stabilised and the attitude is such that we are looking at the side of AO-40 for much of the orbit. The solar cells are on the 8 rectangular side surfaces. Eventually they will be "un-wound" and form a long rectangular structure almost as long as a cricket pitch. But for the moment they are still all wrapped around the edge of the AO-40 spaceframe. If you can imagine the satellite spinning on its axis while you are looking at it side-on, it will be

apparent that the 2.4 GHz antenna is alternately moving towards you and away from you a distance of a metre or so every few seconds as AO-40 spins. The Doppler effect says that an RF source moving towards you has its wavelength shortened (frequency increased) and vice versa. On lower frequencies this effect would be indiscernible but on 2.4 GHz and with the current spin rate, it results in about +/- 14 or 15 Hz movement of the signal with each revolution of the satellite. This is quite significant when trying to demodulate the 400 baud PSK telemetry and many stations have found it nearly impossible to keep their demodulators locked onto the signal. The effect has been dubbed "wobulation" by the control team. The control stations have re-activated the magna-torquing and this will be used to gradually slow the spin rate and alter the attitude of the satellite. Both these things will have a bearing on the amount of wobulation exhibited on the 2.4 GHz beacon and hopefully make the job of capturing telemetry blocks a lot easier. Eventually when AO-40 is in its final orbit and 3-axis stabilised and earth-pointing at all times this wobulation will be minimised even on 2.4 GHz

Packet Operations Begin on ISS

An announcement was made on 8th Jan 2001 that the packet radio system on board ISS was to be activated in a limited way. At the time of writing I have had no reports of any signals heard. It is however good news that happenings on ISS may be slowing down enough that some "recreational" activities can be scheduled.

Bill Magnusson VK3JT
Milawa, Vic.

DAVID BRIAN VK3ADD

On 15th of December 2000 David Brian VK3ADD past away after a long battle with a tumor in the brain, he was 53.

Born in the U.K, David came to Australia with his parents as a young lad. He lived most of his life in Dandenong. He was a bachelor and he had a great circle of friends. He had worked for 20 odd years at the Defence Department as a Technical Officer. He

then moved to Phillip Island for a few years making more friends and then moved back to Dandenong. Former VK3ZST, Dave was very active in the Radio scene from HF to VHF throughout the 60s and 70s. He was involved with the formation of the Gippsland Gate Radio Club, as it was known then, and was the club's first Vice President. Dave kept a close knit group of friends over

the last few years. For myself, however, it was in 1974 that I met Dave for the first time. I was only 14 years old. He introduced me to the hobby. I'll never forget that first time walking into his radio shack and saying "Wow!" By 16 I was licensed. Dave and I shared many good times in those days.

David will be sadly missed by all that knew him. He was a good bloke.

Clint Jeffrey VK3CSJ

Silent Key

Rosa Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email V3k3wac@aol.com

DXing the other side of the globe

Someone mentioned to me that a lot of space is given over to DXpeditions to the Pacific in 'DX Notes', and that the Pacific is not real DX to VK amateurs. The truth of the matter is that to the rest of the world, Pacific countries, including VK, are real DX contacts for them. This is why considerable effort and expense is expended in mounting DXpeditions to this area. VK amateurs are just as eager (or should be) to work TF, OY, JX, JW or VE8 on the other side of the globe. Besides, the amateur population of some of the Pacific countries is very small, so although not DX they can certainly be a rare catch for some VK operators. When conditions from VK into Europe or the US is reasonable many stations line up to work almost any VK station that is on the band. Remember that the number of VK amateurs is relatively small, in the great scheme of things, therefore the opportunity to work VK is appreciated by most Europeans and US stations.

I have been experimenting in the shack with the new mode called PSK31. The popularity of this mode is increasing rapidly overseas but very little is heard of it within Australia. The mode itself is reminiscent of RTTY in that you type on a keyboard and text is transmitted and received on a PC monitor. However, the 'modus operandi' is totally different to RTTY. Information is conveyed not by switching between two audio tones (mark and space) but by changing the phase of a continuous tone (approx. 1kHz). I have downloaded some software from the Internet that decodes the RXed audio signal and generates the TX signal via the PC sound card. A simple interface has to be built to isolate the PC from the transceiver and also to transform the RX and TX levels at the sound card ports to compatible levels for the radio. So far I have had 6 QSOs on 20m with a variety of European stations and 2 US stations, one of which was on 30m a notorious band for QRM/N. Tuning is fairly critical for successful

operation, but amazingly, the mode is fairly QRN proof. I sometimes have some severe QRN here from a local who has a very noisy electric bench saw who refuses to let me fit a mains filter, but PSK31 seemed not to notice it at all. I was very impressed. If anyone wants the Internet address for the software, and a diagram of a simple interface circuit, then please drop me a line and I will E-mail, or snail mail, it to you. Over the next few months I will try and spend some time on this mode and see who and what is around on this mode, will I hear you on the bands? I hope so.

The DX

408, Kosovo. Chris, G0TQJ will be based in Kosovo, Yugoslavia for 4 months. He hopes to use the call 408/G0TQJ but does not know for sure yet. Operation will be in Chris's spare time, SSB mostly but will shift to CW if requested. QSL will be via G0TQJ. (TNX G0TQJ and The Daily DX)

7Q, Harry, G0JMU, will be operating as 7Q7HB again for a month in February. His past activity using this call has seen SSTV, PSK1 and operation on the WARC bands, all of which proved very popular. Allan, G0IAS is inviting E-mails to g0ias@amsat.org to arrange a sked etc, "let me know what your requirements are", Allan says, "and if it is possible, we should be able to help". (TNX 425 DX News)

A5, Bhutan. Glenn, (W0GJ/A52GJ) will be at work at the hospital in Thimphu, Bhutan from the 29th of December until early February. Glenn and his family, Mark (N0MJ/A52MJ), Vivien (KL7YL/A52VJ), Melissa (N0MAJ/A52YL), Carrie (N0CMJ) and Paul (W0PRJ), hope to be on the air on all bands and modes, placing an emphasis on the low bands at sunrise and sunset. QSL routes are via their home calls. (TNX The Daily DX and 425 DX News)

C56, The Gambia. Two German Amateur operators announce they will be active from The Gambia from the 20th of February until the 5th of March. Mike, DL2OE and Hans, DL7CM will be using C56/homecalls on 6 to 160 metres on CW, SSB and RTTY. They will be running 150 watts only; this is the legal limit for The Gambia. QSL via their home calls. (TNX DL2OE, DL7CM and The Daily DX)

CX, Uruguay. Jorge, CX8VM is active on 12m(+/- 24.897MHz) and 17m(+/- 18.073MHz) between 10.30-12.00 UTC and 21.30-22.30 UTC from Monday to Friday, but he is able to extend these time frames at the weekends. QSL direct only to W3HNK, Joseph Arcure Jr., P.O.Box 73, Edgemont, PA 19028, USA. (TNX CX8VM and 425 DX News)

OE, Austria. The special prefix OE75 has been authorised for use by Austrian Amateur radio operators from the 1st of January until the 31st of December 2001. The call is to celebrate the 75th anniversary of the Austrian IARU society (OEVSF). An award is available from OEVSF for the event and further information can be had from their website at <http://www.edu.uniklu.ac.at/~cirasch> (TNX OE8CIQ and 425 DX News)

J28EX, Djibouti. David, F5THR has been operating as J28EX since May 2000. He will be in Djibouti until May 2002. The QSL is via the bureau to FB1BON, or direct to Mr Patrice Brechet, P.O. Box 522, 85305 Challans CX, FRANCE. (TNX F5THR and The Daily DX)

P2, Bougainville Island. Look for Steve, VK4EMS to be active again as P29BI from Bougainville Island (OC-135) starting on 6 December for two months. He will operate (probably on 20 metres SSB only) in his spare time. QSL via VK4EJ, Bernie McIvor, 30 Brennan Parade, Strathpine 4500, Australia. (TNX 425 DX News)

S2, Bangladesh. Carl, SM6CFY, has had to delay his trip to Bangladesh. Carl

was originally planning to be there during late December to early January. Now, he is expecting to be active as S21YD from the 12th to 19th of February. The trip had to be delayed due to local flooding. [TNX SM6CPY and OPDX]

V31, Belize. Klaus, DJ4SO, will be active from Hopkins Village in the south of Belize from January 17 to February 12. He will use V31SN and will be QRV mostly on CW, RTTY, PSK31 and some SSB. Look for him on all HF bands with an emphasis on 6, 12, 17 and 30 metres. 80 and 160 metres will depend on the antenna possibilities. QSL via DJ4SO either via the bureau or direct. [TNX DJ4SO and The Daily DX]

ZC4, UK Sovereign Base Areas on Cyprus. The ZC4 club station should be up and running as ZC4ESB (Eastern Sovereign Base) on all bands and modes for at least the next three years. This will include participation in most contests as well. Anyone needing ZC4 will have plenty of time to bag this one. The operators will be Steve, ZC4BS, Des, ZC4DW and Graham/ZC4GK. [TNX OPDX and 425 DX News]

IOTA Activity

SA 013. Felix, CE0XT, should be on the air during the second week of February 2001 on 160 – 10 metres, WARC bands included. Operating SSB, CW, RTTY and PSK. The operation will have three or four 1kW stations. This will be a multinational group of 9 operators headed by Marco, CE6TBN. The specific island will be San Ambrosio (SA-013). San Felix is 34th on the ARRL's most needed list.

Special Events

SM, Sweden. Kungälv Radio Club, SK6NL will be active as SI900TKM from the 1st of January through until the 31st of December 2001. Further information on this call is available at <http://www.lsten.to/sk6nl> QSL via SK6NL. [TNX SM6VVT and 425 DX News]

DXpeditions

Agalega 2001. The 3B6RF DXpedition to Agalega [425DXN 497] is confirmed to take place from the 5th to the 18th of May. The team now consists of HB9BQL, HB9BQW, HB9BXE, HB9CRV, HB9HFN, HB9JAI, HB9JBI, 3B8CF, 9A4TU, CT1AGF, DL3KUD, DL8UAA, F6HMF, G3KHZ and NK6F. One of the team, Joe, HB9AJW, has been forced to cancel his position on the trip. The team is now

looking for a good CW operator with contest and field day experience to replace him. If interested please contact Hans-Peter, HB9BXE at the following E-mail address [hb9bx@pilotusnet.ch]. [TNX HB9BXE and 425 DX News]

A group of amateurs from the OK DX Foundation are heading out to the Pacific again. The team plan to operate as T32RD from East Kiribati from the 11th until the 25th of February. Operators include Jarda, OK1RD; Jirka, OK1RI; and Frank, OK1EK. All bands from 10 - 160 metres, CW and SSB. They will be shipping three IC-706MKIIG's and two Alpha 91B amplifiers. Antennas will comprise a Titanex vertical (27 metres high) for 80 and 160 metres, a 2 element quad for 40 metres, a ground plane for 30 metres and yagi beams for 10 - 20 metres. Low bands will be given lots of attention as will working into Europe. The pilot for the low bands will be Mike, OE6MBG and Vasek, OK1ADM will be the pilot for all other bands. The QSL manager for T32RD will be OK1RD. [TNX OK DX Foundation and The Daily DX]

3D2, Conway Reef. Hrane, YT1AD, reports that their plans are firm for the upcoming DXpedition. The operation will take place February 18-27th in 2001. The operators will be YT1AD, YU1RL, YU1NR, YU7AV, YS1RR, Z32AU and Z32ZM. Activity will be on 160-6 metres as well as 2 metres. The modes to be used are CW, SSB, RTTY, PSK and SSTV, with four complete stations and several antennas. Callsigns have already been allocated and will be announced when operations begin. This activity, in common with all other well-equipped DXpeditions, will be an expensive one with the total cost of the DXpedition amounting to around US\$45,000. Any donations to offset this cost will be highly appreciated by the organisers. [TNX YT1AD, YS1RR, OPDX and 425 DX News]

DB, Comoros. Everything remains on course for the D68C DXpedition to the Comoros, active from about 8 to 28 February 2001 [425DXN 495], including an entry in the multi-two section of the ARRL CW Contest (17-18 February). Some 3000kg of equipment was shipped on 30 November and 28 operators are signed up to participate (some will be there for the whole of the period, some for part of the time): 5B4AGC, 5B4WN, 9H1EL, DL7AKC, G0OPB, G3NUG,

G3OZF, G3SED, G3VMW, G3WGV, G3XTT, G4JVG, G4KIU, G4TSH, G4VXE, GU4YCX, JA1RJU, JA3AER, JP1NWZ, M08JL, M0DXR, N7CQQ, PE9PE, SM5AQD, UT8LL, W3EF and W3WL. The chief pilot will be Martin/G3ZAY, Ray/9M2OM (G3NOM) will be the pilot for Asia and pilots for other regions will be announced in due course. QSL via G3SWH (SWL QSLs will be handled by Bob, BR532525). News just in says that three new operators have joined the team: Tim/G4VXE, Yoichi/JP1NWZ and Rob/PE9PE (who will be especially welcome to 6 metre, VHF and satellite operators). This DXpedition will be a very expensive one and the organisers are looking for further sponsorship, especially from DX groups and foundations, is sought and being co-ordinated by Wes/W3WL [blambole@eol.com, for the US], Taizo/JA3AER (arakawa@sakurura.net.jp, for Japan) and Steve/G4JVG (g4jvg@cwcom.net, for the rest of the world). Donations can be sent to John/G3WGV (g3wgv@aol.com). Look for the latest news on the D68C Web Page at <http://www.dxbands.com/comoros> [TNX G3XTT and 425 DX News]

QSL Addresses

EP4PTT C/O Directorate of Telecommunications, Box 11365 - 931, Tehran, Iran

GJ2A JARS, P.O. Box 338, Jersey JE4 9YC, United Kingdom

JW0HR Vlad Shakun, P.O. Box 224, N-9178 Barentsburg, Norway

JW0HS Ivan, P.O. Box 127, Barentsburg N-9178, Svalbard via Norway

LU5PC Jesus Rubio, San Juan 2694, Rosario 2000, SF, Argentina

LU9HS Javier Santillan, Fournier 2783, Barrio Matienzo, X5011CDO Cordoba, Argentina

OZ5AAH Preben Jakobsen, 9 Knoldager, DK 2670 Greve, Denmark

PP5MQ Mario Marquardt, P.O. Box 212, 89201-972 Joinville - SC, Brazil

SV2ASP/A Monk Apollo, Monastery Dochariour, GR-63087 Mt. Athos, Greece

T92000 P.O. Box 56, Sarajevo BA-71000, Bosnia & Herzegovina

Z35M Vladimir Kovaceski, P.O. Box 10, 6330 Struga, Macedonia

ZA1K Ben, P.O. Box 7464, Tirana, Albania

BA4DW David reports that some sources available on the Internet give an

incorrect address. Please note that his correct address is David Y J. Zhou, P.O. Box 040-088, Shanghai, 200040, China. T19JP T12JP, Jose Pastora, P.O. Box 2048-2050, Costa Rica, America Central. ZP6CU P.O. Box 73, Caacupe, Paraguay

Round up

Chuck Brady, N4BQW has been active as 3Y0C from Bouvet Island (AN-002) since the 16th of December 2000. Chuck, a NASA astronaut, will be on the island as a member of a group of scientists for approx. four months. This is not an amateur radio DXpedition and Chuck will operate as and when time allows, although he does expect to get on air fairly frequently. He will have limited access to a generator and will use a large bank of batteries at other times. He is currently active on 10, 15 and 20 metres, but he hopes to be active on other HF bands as well. His equipment comprises an amplifier, vertical antennas for 160-40 metres and beams for 30-10 metres. Currently, Chuck is running 700 watts into a G5RV antenna. He has Yagi beams, but these will be installed later. SSB is his favourite mode but can use a hand key for an occasional foray on CW. QSL will be via WA4FFW, but please no cards until an official QSL address is released. Check the following address <http://www.qsl.net/zr1dq> for the latest information from the island. [TNX The Daily DX and 425 DX News]

Turkmenistan has authorised the use of the call EZ21xx to commemorate the new millennium and a number of stations have already taken the opportunity to use the call. EZ21A, EZ21AQ and EZ21BO have all been heard recently [TNX The daily DX]

Angelo, I6BQI, will be touring around

the Pacific for six weeks. His trip will begin the first week of February 2001. Angelo plans to operate CW on all HF bands 160 – 10 metres and also 6m from Tonga as A35BQ, from Nuie as ZK2BQI and also from YJ, 5W, C2 and T3 if he can obtain the appropriate licences. No mention of a QSL route but via his home call would probably be a safe bet. [TNX 425 DX News]

Greek 10m Beacon. John, SV3AQR reports that SV3AQR/B is located at Amalias, Greece and transmits on 28182.5kHz using 4 watts to a vertical antenna. Signal reports would be greatly appreciated and can be sent to SV3AQR/B, P.O. Box 30, Amalias 27200, Greece or via Packet at sv3aqr@sv8rv.zak.grc.eu or E-mail at sv3aqr@packet-g.ceid.upatras.gr [TNX SV3AQR and 425 DX News]

An interesting item of news that arrived in my mailbox too late to make the January 'DX Notes' was of a special event to commemorate the first transatlantic radio transmission by Marconi. The Marconi Radio Club, W1AA (they can be found on the Internet at <http://personal.tmlp.com/k1vv/w1aa>) operated from Cape Cod (Massachusetts) as W1AA/CC to celebrate the 98th Anniversary of Guglielmo Marconi's first transatlantic radio transmission between Cape Cod and England. "CC" was Marconi's first call sign for his transatlantic Cape Cod Station. Operation was to have taken place with two stations, one SSB and the other CW, on 20-10 metres from the 12th until the 22nd of January. The QSL route for those lucky enough to have worked the other station is via the W1 Bureau (for DX stations). [TNX K1VV and 425 DX News]

Eugene, RA0FF (ra0ff@bgtelcom.ru)

reports that the "Asia DX Window" [ADKW] Internet Web Cluster (<http://dx.bgtelcom.ru>) now has an open special notice board for skeds on 160 and 80 metres. [TNX RA0FF and 425 DX News]

Those of you who have computers may be interested in a new piece of software called DXVIEW. Given a callsign or prefix, DXView determines the associated DXCC entity, reporting its location and beam heading from your QTH. DXView presents a world map, upon which beam headings, stations you spot, the sun's position, and the solar terminator is continuously displayed. DXView is free, contains no advertising and its commercial use is expressly forbidden. Version 1.1.0 of DXView is available at <http://www.qsl.net/dxview/download.htm> [TNX AA6YQ and 425 DX News]

Prefix List. Rod, AC6V has produced an excellent resource for all DX'ers and SWLs. He has just finished updating and expanding a Prefix List at <http://www.ac6v.com/prefixes.html>. The list includes ITU Block Assignments, ITU Zones, CQ Zones, details (where known) of call districts and much more. The information has been gathered over a period of some 20 years so it should be very comprehensive and informative. [TNX AC6V and 425 DX News]

Sources

As always, a sincere thanks to the following individuals and publications, G0TQJ, DL2OE, DL7CM, CX6VM, SM6CPY, DJ4SO, AC6V, AA6YQ, RA0FF, K1VV, SV3AQR, G3XTT, YT1AD, YS1RR, HB9BXE, SM6VVT, 425 DX News, OPDX and The Daily DX.

BT

ISLAND HOLIDAY with AMATEUR RADIO

How would you like an Island Holiday not far from Adelaide?
KANGAROO ISLAND has an IOTA number! OC139

Steve VK5AIM is looking for a group of Amateurs & partners who would enjoy a Radio Holiday for a few days on K.I. The idea is for the Amateurs to run their station while the

partners go off around the Island visiting the sights! Self contained accommodation at Pandanna, located in the middle of the island.

To express your interest.
Contact Steve VK5AIM
Telephone 08 8255 7397
Email teddies1@seanet.com.au

ARL Awards

John Kelleher VK3DP, Federal Awards Officer
4 Brook Crescent, Box Hill South Vic 3128, (03) 9889 8393

VK3EW leads the log-jam



Not very often am I confronted with a log-jam at the head of the DXCC listings. One can easily see who are our leading DXers. Sometimes one just jumps out of the pack.

In this particular case, it is an operator that I have known for all of my amateur life. He is one of that breed of operator who will work long hours, and still attend gleefully to the wants and worries of others. He is a font of amateur knowledge, and runs a great amateur station.

Most of you will, without doubt, instantly recognise him. He is David, VK3EW (Electric Wireless), who now

heads the WIA SSB listings, having worked and confirmed all entities on the current ARRL DXCC list. He was a pilot station during a recent DXpedition in the Pacific area, and is well known internationally. We had a recent meeting, where I vetted all his QSL cards. My eyes went a bright green when I closely checked his P5 card.

When you read this, I will have completed my fourth stay in hospital. Without the very splendid expertise of our local hospital staff, I feel that you would have been looking for a new Awards Manager. I mean it.

Japan : The JARL 21st Century Dream Award.

To commemorate the beginning of the 21st Century JARL will issue the following special award to licensed amateurs and SWL worldwide. "JARL 21st Century Dream Award" will be issued for contacts with more than 21 different amateur stations on a single band (including satellite communications) or single mode. Contacts with the same station on different bands will not qualify).

Requirements . A list of contacts (receiving a QSL card is not necessary) furnished with the call signs of stations worked/heard, dates, bands and modes, and reception report. Do not send QSL cards. The fee for overseas operators is 8 Irc's

Only contacts made from January 1, 2001 through December 31 2001 will be acceptable JARL will start accepting

applications on April 1, 2001 and will close on March 31, 2002. Applicants can request for maximum three of the following five endorsements - Bands, modes, QRP, QRP/p custom endorsement. A custom endorsement is one the recipient chooses with a name of up to 16 letters, for the same working method, such as location, equipment or antenna

For more information, direct all correspondence to :

Japan Amateur Radio league

— Award Desk

1-14-5 Sugamo, Toshima,

Tokyo 170-8073 JAPAN. or
oper@jarl.or.jp

Mention has been made with particular reference to USA postal rates and charges. It seems that the purchase price for Irc's will rise to \$1.75 with the

normal exchange rate of 80 cents of stamps (airmail) with no cash refunds. For an airmail letter, one ounce to anywhere in the world (except Canada and Mexico) will be 80 cents. A 2 ounce airmail letter, however, will cost as follows

Group 3 - \$1.60

Group 4 - \$1.70 and

Group 5 - \$1.55

Group 3 is mainly Western Europe, but not totally.

Group 4 is Japan, Australia, and New Zealand.

Group 5 is the rest of the world

These rates are effective from Jan 7 2001, for both domestic and international mail.

Now follows the WIA DXCC listings waf 31st December, 2000

Regards es best 73 de John, VK3DP

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of December 2000

L21183 MR G MORROW
L50087 MR R H CHESTER
VK2AVE MR J BUSSING
VK2DAT MR A BAUER
VK2QGR MR K E KOVEJOY

VK2HCD DR C DEVERY
VK2ISA MR J KIRK
VK2TRT MR P RADFORD
VK5ZAM MR S F WARREN
VK6GO MR H OOSTERBAAN

Silent Keys

The WIA regrets to announce the recent passing of:-

J H L (John) FIELD VK2AKF
W C GOODMAN VK3JFQ
(Les) BELL VK4LZ
P L (Philip) HAY VK6AQO

DXCC LISTINGS

ROLL OF HONOUR SSB

VK3EW	334/340
VK5MS	333/387
VK4LC	333/380
VK5WO	333/365
VK6LK	333/358
VK6HD	333/358
VK3QI	333/347
VK3AKK	333/346
VK3DYL	333/339
VK2FGI	333/339
VK4UA	331/345
VK1ZL	331/337
VK4OH	330/337
VK6RU	329/384
VK6NE	328/344
VK2DEJ	328/334
VK3YJ	325/331
VK4AAR	323/327
VK3AMK	321/340
VK5EE	321/327
VK2AVZ	319/330
VK7BC	319/329
VK6VS	319/323
VK3CSR	316/325
VK5FV	313/317

ORDINARY LIST SSB

VK6AJW	312/317
VK6APK	310/315
VK5WV	306/328
VK6PY	306/312
VK3JI	304/319
VK6RO	303/309
VK3IR	302/308
VK4LV	300/302
VK4SJ	300/301
VK4ICU	294/296
VK4DP	293/305
VK2WU	291/296
VK6DY	291/294
VK4BG	286/302
VK6ABS	285/
VK3CYL	282/288
VK4EJ	275/277
VK3DP	272/275
VK3GI	263/267
VK4BAY	263/266
VK3VQ	259/276
VK6ANC	258/262
VK5IE	258/261
VK3UY	258/260
VK2HV	252/
VK3CIM	250/254
VK2PU	243/247
VK6YF	238/241
VK7TS	237/238

VK8KTC	231/233
VK2UK	229/233
VK6APW	228/229
VK3ETM	226/227
VK3SM	222/242
VK5BO	217/222
VK4EMS	215/
VK3DD	213/217
VK4IL	212/
VK4XJ	204/216
VK3DVT	201/204
VK2CA	201/
VK3EFT	198/201
PY2DBU	195/197
VK6WJH	183/
VK2FHN	173/
WA1MKS	171/
VK6APH	168/169
VK4CHB	167/168
VK7JAB	162/
LU5DSE	161/
VK4ARB	159/160
VK4IT	154/155
VK4AO	153/
VK4CHB	152/153
VK2GSN	152/
VK4BP	148/
VK2SPS	141/143
VK6LC	139/140
VK3DQ	133/147
VK2LEE	130/132
TI2YLL	127/
VK4VIS	126/128
YC8EMH	126/127
VK7LUV	128/
TG8NE	125/
SM6PRX	121/126
HL4YD	118/119
VK2MH	116/118
VK7WD	115/116
VK5GZ	113/115
VK6NV	111/113
JA8XDM	111/
C21DJ	109/
VK3MRG	108/
JE9EMA	108/
VK5UO	107/110
HC2HYB	106/107
VK4LW	105/
VK2EJK	104/
JN6MIC	103/104
ZS6IR	102/104
KB2NEK	102/103
C21NJ	102/
VK2FZR	102/
JH3OHO	101/103
VK2EJM	101/103

VK3KTO	101/102
VK1PRG	101/
VK2IRP	100/101
ON4BCM	100/

ROLL OF HONOUR CW

VK6HD	333/354
VK3QI	333/345
VK5WO	326/342

ORDINARY LIST CW

VK3KS	307/335
VK4LV	287/294
VK4ICU	279/
VK6RU	278/322
VK3JI	271/296
VK3AKK	270/275
VK4KU	251/
VK6MK	246/249
VK2CWS	244/246
VK3DP	242/245
VK3DQ	234/261
VK7BC	234/243
VK4DA	233/235
VK3CIM	228/229
VK4DP	205/216
VK7RO	201/204
VK5GZ	197/199
VK6PY	190/194
VK6HW	179/182
VK5UO	165/166
VK7TS	165/
VK5BO	159/184
VK4XJ	150/163
WA5VGI	146/148
VK4UA	143/145
VK4AAR	140/142
VK7DQ	131/132
VK2TB	123/125
VK7CQ	120/122
DK6AP	120/
SP1AFU	112/113
VK8KV	112/113
K5QNM	110/113
VK5BWW	110/111
VK6NV	109/110
OK1FED	109/
VK2PYM	106/108
VK4CXQ	106/
VK4EMS	104/
UR5BSJ	103/105
VK3DG	102/
SM6PRX	101/102

ROLL OF HONOUR OPEN

VK4LC	333/380
VK5WO	333/369
VK6HD	333/360
VK3QI	333/348

VK4UA	331/347
VK6RU	330/385
VK3AKK	327/338
VK7BC	327/336
VK3UY	326/329
VK4AAR	324/328
VK6AMK	322/341
VK2AVZ	320/330
VK3JI	315/344

ORDINARY LIST OPEN

VK4LV	313/317
VK4DV	310/325
VK4DP	309/323
VK6RO	309/315
VK3DP	305/309
VK4ICU	303/305
VK4BG	293/312
VK3CYL	282/288
VK3VQ	274/291
VK3CIM	274/278
VK5BO	264/302
VK6ANC	261/265
TF5BW	260/264
PY2DVU	254/259
VK6MK	253/256
VK7TS	252/254
VK2HV	253/
VK2CWS	250/252
VK5UO	248/250
VK3DQ	246/275
VK6APW	239/240
VK2ETM	238/240
VK4DA	234/236
VK4XJ	233/249
VK4EMS	223/
WA5VGI	216/218
VK5GZ	204/206
VK2EFT	202/205
VK4CHB	177/179
VK6APH	171/172
9A4KA	168/
SM6PRX	162/169
VK3VB	153/155
VK4EMS	150/
VK6LC	142/144
VK4EZ	129/138
YB8GH	127/129
VK3VB	126/128
VK7CQ	123/125
SP1AFU	114/115
VK3MRG	109/
VK3OZ	104/105
VK2AJE	100/

Contests

Contest Calendar February - April 2001

Feb		Mexican RTTY Contest	(RTTY)	
Feb	10/11	WW RTTY WPX Contest	(RTTY)	
Feb	10/11	PACC Contest	(CW/SSB)	
Feb	10	Asia-Pacific Sprint	(CW)	
Feb	10/11	RSGB 160 Metres Contest	(CW)	
Feb	17/18	ARRL DX Contest	(CW)	
Feb	23-25	CQ WW 160 Metres Contest	(SSB)	
Feb	24/25	REF (France) DX Contest	(SSB)	(Dec 00)
Feb	24/25	UBA DX Contest	(CW)	
Feb	24/25	RSGB 7 KHz Contest	(CW)	
Feb	25	High Speed Club Contest	(CW)	
Mar		ARRL DX Contest	(SSB)	
Mar	10/11	RSGB Commonwealth Contest	(CW)	
Mar	10/11	World-Wide Locator Contest	(CW/SSB)	
Mar	17/18	John Moyle Field Day Contest	(All modes)	
Mar	17/18	Russian DX Contest	(CW/SSB)	
Mar	17/18	Bermuda WW Contest	(CW/SSB)	
Mar	17/18	DARC HF SSTV Contest		
Mar	24/25	CQ WW WPX Contest	(SSB)	
Apr	7/8	SP DX Contest	(CW/SSB)	
Apr	7/8	EA RTTY Contest		
Apr	7/8	King of Spain Contest	(CW/SSB)	
Apr	13-15	Japan Intl. DX Contest 20 - 10 m	(CW)	
Apr	14	TARA PSK31 Rumble		
Apr	14/15	Holyland DX Contest	(CW/SSB)	
Apr	21/22	YU DX Contest	(CW/SSB)	
Apr	21	EU Spring sprint	(SSB)	
Apr	28/29	Helvetia DX Contest	(CW/SSB)	
Apr	28/29	SP DX RTTY Contest		
Apr	29	Harry Angel Memorial Sprint	(CW/SSB)	

Results ARI International DX Contest
May 2000

RTTY Single Operator

37 VK6GOM 20796

(VKs only) CW Single Operator (Place/call/score)

96 VK4TT 29176

REMEMBRANCE DAY CONTEST 2000

VK4 Division Wins

Through consistent improvement in both the HF and VHF sections, the VK4 Division has broken the stranglehold of the VK7 division and taken out the Remembrance Day Contest premiership for 2000. From 5th place in 1999 to 1st place in 2000 is a tremendous effort. Congratulations to all those who

participated and submitted their logs.

Most divisions registered some improvements in their divisional scores over last year. Also encouraging this year is the number of Limited Novice class operators who took part. Hopefully this increase in contest activity will continue.

There was some confusion in the rules regarding the use of computers for logging and sending CW. I agree that the wording was unclear and this will be addressed in the rules for 2001. There was never any intention to exclude the use of computers for these purposes. In fact their use is encouraged, as the logs

tend to be a little more accurate and much easier to read.

The other issue is that of cover sheets. It is very important to include the name of the operator on the cover sheet or in the log. Some cover sheets made no provision for this and so it makes it cumbersome to find the details in order to print and send out certificates. Please check the cover sheet you are using and make the appropriate changes.

I would like to apologise for the late production of the results. My current employment has seen me away from home from mid July through to late December 2000. I was home for only 5 weekends during that time. Luckily, one of those was RD weekend. I was actually able to operate for short periods during the contest. Unfortunately, collation of the contest results had to give way to family and household matters until the holiday season.

Here now are the results for the contest. Please note that due to the rule change prohibiting automated or robot operation, the VK3 Division's 2000 VHF Benchmark has been adjusted from 11342 to 9927 in an effort to minimise any disadvantage or penalty to that division.

Divisional Scores

Table 1 shows the placing of each division along with their overall Improvement Factors.

Table 1: Divisional Ladder

1st	VK4	2.533
2nd	VK7	1.328
3rd	VK2	1.202
4th	VK3	1.172
5th	VK5/8	1.047
6th	VK1	0.780
7th	VK6	0.729

The total scores in both HF and VHF are shown in Table 2

Table 2: Divisional Scores

Div'n	HF	VHF
VK1	840	40
VK2	5755	69
VK3	4754	8758
VK4	5882	2574
VK5/8	4915	1213
VK6	2143	3425
VK7	1796	1476

There is some uncertainty and even mystery as to how each division's score is calculated. To make it all a little clearer, I have included the following live example of how it is done. I will use the VK3 Division's figures in the calculations.

First is the calculation of Benchmarks for VK3 for 1999 RD Contest.

1999 Benchmarks

(As published in 1998 Results)

HF 3773
VHF 7988

1999 Scores

(As published in 1999 Results)

HF 2886
VHF 10903

Formula:

2000 Benchmark = (0.25 x 1999 Score) + (0.75 x 1999 Benchmark)

Calculations:

HF

2000 Benchmark = (0.25 x 2886) + (0.75 x 3773)

2000 Benchmark = 721.5 + 2829.75

2000 Benchmark = 3551

VHF

2000 Benchmark = (0.25 x 10903) + (0.75 x 7988)

2000 Benchmark = 2725.75 + 5991

2000 Benchmark = 8717

Those 2 benchmark figures are the scores the division needs to beat to register a positive improvement factor in each section of the contest.

Now to calculate the final score, let's use the points that the VK3 division scored in HF and VHF this year.

Individual Scores

The individual scores for entrants are listed below. Certificate winners are denoted by an asterisk (*) and the top Australian scores in each section by a hash (#). Certificates will be issued to both the top single operator and top multi-operator stations in each division.

VK1

HF Phone

EY 99*
DW 86
JDX 79

HF CW

AU 202*

HF Open

ENG 242*
VP 132

VHF Phone

EY 26*
DW 14

VK2

HF Phone

XN 556*#
AKJ 484

DCL

CAA 294
XT 233
IBT 207

BGF 165
VG 148

GWK 144
RD 136

BDT 130
AGF 113

KET 90
SWR 84

WI 56
JON 51

KUR 46
BJK 40

EI 37
CNI 35
EJU 35

Formula:

Improvement Factor = 2000 Points divided by 2000 Benchmark

Calculations:

HF

4754 / 3551 = 1.339

VHF

8758 / 8717 = 1.005

The two improvement factors are now averaged to give the division's final result.

Formula:

Overall Score = (HF Improvement + VHF Improvement) / 2

Calculation:

Overall Score = (1.339 + 1.005) / 2

Overall Score = 2.344 / 2

Overall Score = 1.172

Here now, are the Benchmark figures for the year 2001.

Table 3: 2001 Benchmarks

Div'n	HF	VHF
VK1	680	152
VK2	4693	65
VK3	3852	8727
VK4	4050	1219
VK5/8	4039	1467
VK6	2670	4504
VK7	1841	1025

BUV

25
CF 20
MQX 14
KWX 11

HF CW

KM 288*
BHO 266

AYD 262
OI 208

EL 202
AZR 120

II 86
PS 76

RJ 70
GT 52

HF Open

BO 490*
WL 123

VHF Phone

HDH 32
BDT 18
YHN 18

VK3

HF Phone

CB 322*
APC 258*

SAA 217
AHY 204

OM 183
EK 162

KMC 120
EX 117

JK 111
KTO 109

DS 93
RB 84

ER 83	DI 360	ZWI 25	TT 34	KMK 55	PG 100
KQB 81	TYR 319	JNB 24	IW 10	TW 35	AF 56
WB 66	JK 298	EK 23	<i>HF Open</i>	DG 30	<i>HF Open</i>
KRB 61	HGF 211	KRB 23	LT 315*#	ZQ 30	VZ 264*
FIM 59	ER 205	ZBN 23	DB 312	NE 25	HK 19
CMC 55	EA 200	AMW 22	WIT 226*	AFZ 21	<i>VHF Phone</i>
SB 54	JSM 200	WI 22	GZ 117	MH 20	ANC 237*
AAM 53	CMC 198	MTA 19	LV 90	SE 18	JIP 235*
ADW 53	ACR 193	TFE 19	ZA 90	ATQ 6	HU 215
AMW 52	KBD 190	CEA 15	AKI 70	ACF 1	SAA 215
MMM 49	XJU 189	CB 12	<i>VHF Phone</i>	<i>HF CW</i>	AD 200
ACR 47	SB 176	KK 12	3CE 223*	UM 306*#	BDO 198
BVW 46	FT 175	AYF 10	ZBV 203	8HA 210	HAO 177
US 46	OK 175	AHY 6	HBP 201	<i>HF Open</i>	SAR 173
AQ 45	DXL 171	DET 4	WIL 188*	BRC 774*#	MIN 180
BYV 45	SAC 160	<i>VHF Open</i>	EHT 155	ATU 4 2 5 *	AR 148
DI 44	KTO 155	APC 298*	ADC 114	RG 227	JP 146
FT 44	TEN 150	YE 133*	AML 111	GZ 115	NKB 136
DXL 41	XDJ 147	VK4	LC 106	WO 75	CSW 129
DKT 38	RB 137	<i>HF Phone</i>	CKG 105	ZL 56	NU 125
DY 36	JED 131	DO 420*	OF 91	<i>VHF Phone</i>	KG 120
PC 36	US 118	WIL 382*	MA 80	BRC 335*	KFD 114
CRP 32	AQ 116	BAY 303	KF 79	AR 189*	NGW 91
EA 31	2TWO 112	ADC 277	3YID 78	GRC 139	ZKO 78
EST 31	ZUG 107	FNQ 202	ZA 76	XY 130	AP 77
PDX 30	JMD 103	WW 184	BAY 55	MX 120	FJA 77
MGZ 29	WWW 102	SJ 176	PJ 49	ZKK 82	TS 67
DET 20	FGN 101	BAF 132	WIZ 48	AVQ 57	XV 61
KK 24	NDJ 97	IS 123	GUY 47	AIM 50	YF 60
PRA 22	KKJ 90	CYI 104	BB 42	RV 35	TT 42
BCZ 20	MGZ 85	AGP 100	ANN 39	FD 25	RO 38
ADA 19	BYV 82	WST 98	ZXZ 35	ATQ 20	YJ 29
CAM 19	GK 81	IRW 96	ADY 28	SE 20	KH 20
WI 19	DYL 80	KKN 79	EV 24	ADD 11	PX 14
AAJ 18	PC 80	AWL 76	WIT 24	VK6	AO 12
KB 17	YDJ 68	KF 68	FNQ 17	<i>HF Phone</i>	HK 11
WW 17	YNG 57	ACW 64	BIB 12	CSW 306*	WU 11
JNB 16	CAM 56	PJ 54	TI 11	KG 165	KCC 9
CEA 14	NYE 56	KDL 50	ZJ 11	DDX 136	VK7
AYF 10	LSL 54	EMA 40	KKN 8	AR 109	<i>HF Phone</i>
GK 9	TGX 54	EJ 33	FK 2	AB 79	MS 217*
ACZ 6	APF 53	ACC 31	<i>VHF Open</i>	KH 71	CK 210
VNA 5	DID 53	ILD 31	AR 314*	PX 70	JGD 199
JED 4	VP 51	BSH 30	VK5/8	NHY 63	RN 163
JNH 4	ZPF 50	LMB 23	<i>HF Phone</i>	GL 55	KC 125
<i>HFCW</i>	JNH 49	ADY 18	SR 534*	SAR 44*	KRW 120
BKU 228*	KKJ 47	EV 18	BQ 417*	ABS 41	DG 79
VB 190	VNA 45	FK 17	BWH 290	TS 33	NGC 62
XX 116	BGS 44	TI 16	GRC 256	OE 30	KH 38
AMD 80	JDO 41	WIR 15	BP 227	RZ 28	EH 30
DID 68	CAT 37	3CE 10	XY 126	AD 25	PP 30
JI 26	ADA 33	<i>HF CW</i>	ASN 105	YF 21	RM 29
<i>HF Open</i>	KB 33	WID 292*	EMI 80	NGW 20	SA 22
JSM 228*	CRP 32	XA 230*	RV 75	AFK 17	WR 19
YE 135	EST 32	BUI 218	FD 70	AO 14	JP 16
VP 98	EWM 30	IH 178	AIM 49	MIN 12	BM 15
PP 55	VKC 30	XW 146	AKQ 67	WU 11	KBE 15
<i>VHF Phone</i>	JTW 28	LP 116	OQ 67	<i>HF CW</i>	NDO 15
SAA 890*#	TJN 28	EMM 84	RK 62	AFW 202*	AC 10
MZ 573*	APP 25	OW 84	NN 61	AJ 152	EB 10
	XH 25				

HF CW	EB	99
JE 110*	FB	91
LCW 22	KRW	90*
HF Open	TRF	88
TS 178*	TS	83
KT 62*	JK	50
VHF Phone	RM	45
HDM 220*	NDG	44
DG 201	ZTW	41
XDB 136	KK	38
JGD 114	WR	22
ZCR 100	PP	14

SWL Section

Peter Kenyon	405*#
James Zinkler	165
Christopher Elliot	115

Overseas Section

HF Phone	
ZL3TX	74*
ZL2ADN	41
HF Open	
ZL1ALZ	465*
ZL1BYZ	292
ZL2AJB	112

I received lots of comments with the logs this year. These comments and suggestions are always very welcome. It would take several columns to reprint them all here so I've selected one which particularly caught my attention and which, I believe, sums up RD 2000. It's from Roy, VK4BAY. He says, "Good conditions on all bands. Good company, good spirit, good competition. This is my 15th consecutive RD as a single op and I've enjoyed every one." Thanks Roy and thanks everyone.

73 and see you in 2001,

Alek, VK6APK

2001 John Moyle Field Day Contest

17th and 18th March, 2001

From: Eric Fittock VK4NEF, John Moyle Field Day C.M.
108 Queensport Road, Murarrie Q d 4172
PH. 07 3390 5664 (home)

Well, once again those who enjoy a weekend in the bush should be planning for this year's John Moyle Field Day. The rules are the same as last year.

If anyone wishes to contact me privately to discuss rules etc, my home phone number is 07 3390 5664, and my address is as shown in the Log Submission section below. I wish all entrants good luck, and look forward to hearing you on air during the contest!

Overview

- The aim is to encourage and provide familiarisation with portable operation, and provide training for emergency situations. The rules are therefore designed to encourage field operation.
- The contest takes place on the 3rd full weekend in March each year, and runs from 0100 UTC Saturday to 0059 UTC Sunday, 17-18 March 2001.
- The contest is open to all VK, ZL and P2 stations. Other stations are welcome to participate, but can only claim points for contacts with VK, ZL and P2 stations.
- Single operator portable entries shall consist of one choice from each of the following (e.g. 6 hour, portable, phone, VHF/UHF) (a). 24 or 6 hour; (b). Phone, CW, or All mode; (c). HF, VHF/UHF or All Band.
- Multi-operator portable entries shall be All mode, and consist of one

choice from each of the following: (a). 24 or 6 hour; (b). HF, VHF/UHF or All Band.

- Home and SWL entries may be either 24 hour or 6 hours, All mode, All band.

Scoring

- Portable HF stations shall score 2 points per QSO.
- Portable stations shall score the following on 6m:
 - 0-49 km, 2 points per QSO;
 - 50-99 km, 10 points per QSO;
 - 100-149 km 20 points per QSO;
 - 150-199 km 30 points per QSO;
 - 200-499 km 50 points per QSO;
 - 500 km and greater, 2 points per QSO.
- Portable stations shall score the following on 144MHz and higher:
 - 0 to 49 km, 2 points per QSO;
 - 50 to 99 km, 10 points per QSO;
 - 100 to 149 km, 20 points per QSO;
 - 150 km and greater, 30 points per QSO.
- For each VHF/UHF QSO where more than 2 points is claimed, either the latitude and longitude of the station contacted or other satisfactory proof of distance must be supplied.
- Home stations shall score:
 - Two points per QSO with each portable station.

- One point per QSO with other home stations.

Log Submission

- Logs must be accompanied by a summary sheet showing: callsign, name, mailing address, section entered, number of contacts, claimed score, location of the station during the contest, and equipment used, and a signed declaration stating "I hereby declare that this station was operated in accordance with the rules and spirit of the contest". For multi-operator stations, the names and callsigns (legible) of all operators must be listed.
- Logs must be postmarked no later than 27 April 2001, and forwarded to: "John Moyle Contest Manager, 108 Queensport Road, Murarrie Qld 4172, Australia". An ASCII text copy on a MS-DOS floppy disc would be most helpful. Alternatively, logs may be e-mailed to: asr@powerup.com.au. Logs sent by disc or e-mail must include a summary sheet and declaration, but the operators name (legible) is acceptable in lieu of a signature.

Certificates and Trophy

- At the discretion of the Contest Manager, certificates will be awarded to the winners of each portable section. Additional certificates may be awarded where

operation merits it. Note that entrants in a 24 hour section are ineligible for awards in a 6 hour section.

- 15 The Australian portable station, CW section, with the highest CW score will be awarded the President's Cup, a perpetual trophy held at the Executive Office, and will receive an individually inscribed wall plaque as permanent recognition.

Disqualification

- 16 General WIA contest disqualification criteria, as published in Amateur Radio from time to time, applies to entries in this contest. Logs which are illegible or excessively untidy are also liable to be disqualified

Definitions

17. A portable station comprises field equipment operating from a power source, e.g. batteries, portable generator, solar power, wind power, independent of any permanent facilities
18. All equipment comprising the portable station must be located within an 800m diameter circle
19. A single operator station is where one person performs all operating, logging, and spotting functions.
20. A single operator may only use a callsign of which he/she is the official holder. A single operator may not use a callsign belonging to any group, club or organisation for which he/she is a sponsor except as part of a multioperator entry.
21. A multioperator station is where more than one person operates, checks for duplicates, keeps the log, performs spotting, etc.
22. A multioperator station may use only one callsign during the contest.
23. Multioperator stations may only use one transmitter on each band at any one time, regardless of the mode in use.
24. Multioperator stations must use a separate log for each band.
25. A station operated by a club, group, or organisation will be considered to be multioperator by default.
26. None of the portable field equipment may be erected on the site earlier than 28 hours before the beginning of the contest.
27. Single operator stations may receive moderate assistance prior to and during the contest, except for operating, logging and spotting. The practice of clubs or groups providing massive logistic support to a single operator is, however, totally against the spirit of the contest. Offenders will be disqualified, and at the discretion of the manager, may be banned from further participation in the contest for a period of up to 3 years.
28. Phone includes SSB, AM and FM.
29. CW includes CW, RTTY, and packet.
30. It is not expected that any other modes will be used in the contest, but if they are, they shall be classed as CW.

31. All amateur bands may be used except 10, 18 and 24 MHz VHF/UHF means all amateur bands above 30 MHz. Note On 6 m, the region below 50.150 has been declared a contest free zone and contest CQ's and exchanges may only take place above this frequency. Stations violating this rule will be disqualified
32. Cross-band, cross-mode and contacts made via repeaters are not permitted for contest credit. However, repeaters may be used to arrange a contact on another frequency where a repeater is not used for the contact.
33. Stations may make repeat contacts and claim full points for each one. For this purpose, the contest is divided into eight consecutive three-hour blocks: 01-0359 04-0659 07-0959, 10-1259, 13-1559, 16-1859, 19-2159, 22-0059 UTC. If you work a station at 0359 UTC a repeat contact may be made after the start of a new block providing, they are not consecutive or are separated by five minutes, since the previous valid contact with that station on the same band and mode
34. Stations must exchange ciphers comprising RS(T) plus a 3 digit number commencing at 001 and incrementing by one for each contact
35. Portable stations shall add the letter "P" to their own cipher, eg. 59001P
36. Multioperator stations are to commence each band with 001.
37. Receiving stations must record the ciphers sent by both stations being logged. QSO points will be on the same basis as for Home Stations unless the receiving station is portable
- 38 The practice of commencing operation and later selecting the most profitable operational period within the allocated contest times is not in the spirit of the contest, and shall result in disqualification. The period of operation commences with the first contact on any band or mode, and finishes either 6 or 24 hours later

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The 'grey line' phenomenon

Have you noticed that short-wave reception seems to be better around the times for sunset and sunrise?

I first discovered this many decades ago, when I started listening and recently noticed it again, especially around my local sunrise. This effect has been documented as the grey line effect. In fact, you will notice signals will come up out of the noise threshold and within 30 minutes they are gone again. This is because it is either sunrise or sunset at the transmitting location. Your local sunrise/sunset is also a very good time to listen.

I have found at this location in Tasmania that the times leading up to sunset by about 90 minutes are good and once the sun has set, propagation drops away sharply, particularly on the higher frequencies. Later on the paths may open as the sun rises or sets, in other locales. Conversely I have found that the best times for listening is up to 90 minutes after the sun rises and that the lower frequencies quickly drop away as the sun rises higher. Also the higher frequencies propagate better in daylight.

The closer you get to the Equator; there is less twilight with the result that the time is shorter. I personally have noticed this when I have been in Queensland.

Here are some examples of this grey line phenomenon. Nigeria can sometimes be heard on 7255 kHz between 0600 and 0700 which correlates to their local sunrise. As it is almost on the equator, the signal will peak around their local sunrise and quickly fade down again. I should emphasize that Nigeria is not there in our local summer months and is best heard from March to August. Also listening on the 60 metre and 90 metre tropical broadcasting allocations, you will find that often African signals will propagate best at our local sunrise while signals from Latin America will be best around their local sunrise. In fact one can follow the sunrise as the Caribbean will come in

first, followed by the West Coast of South America and then Central America.

Signals from Europe also hang in for longer at their local sunrise and again it is possible to follow the propagation as the sun rises. Middle Eastern signals are usually the first at 0300 followed by eastern Mediterranean stations around 0400. Central Europe is around 0500 followed at 0600 by the UK and western European locations. Mid Atlantic signals usually aeronautical usually come in at 0800 with Brazil one hour later.

I have been asked why American stations are very loud on the higher frequencies around 2200. For example, WHRA in Greenbush, Maine is extremely loud on 17650 at 2145. Well it is just after our local sunrise here and the sun is just setting on the North American east coast. There is a seasonal variation with this as the sunrise-sunset times will be different, depending on the latitude.

The grey line phenomenon is not new and has been used by amateurs and professionals. I believe that a freeware computer programme is available to take advantage of this phenomenon.

I am hearing the Voice of Islamic Iran in English from 2130 to 2225 on 11740 kHz. It is for listeners in Oceania and the signal level is quite good, as is the modulation. However the diction from one of the male presenters was very poor.

China Radio International in Beijing has an excellent signal broadcasting to this region at 0900 till 1055 on 15210 and 11730. The first 30 minutes is the News and Reports and the final 25 minutes is a feature. The production is very good, compared to the fare dished out during the Maoist era. The transmission is repeated at 1200, presumably for WA but they have made a terrible mistake in choosing 9760 because the VOA from the Philippines

is also on the channel in English. Fortunately the other channel of 11675 is excellent. At 1255, CRI drops 9760 and brings up 11900 at 1300.

I also note that the Chinese domestic relays on 8566 and 9390 kHz have gone, replaced by 7120 and 9610.

Incidentally the latter is also used by Taiwan Radio International. Other odd channels may also disappear, as there was a re-organization of networks, just before Christmas. The powerhouse on 11000 is still there in our evening hours but 11040 and 11100 have gone. Also noticed that the domestic relays are easily heard in our daytime on the 16 metre band, particularly 17565 and 17890.

Radio Australia has commenced using the Singapore relay on January 4th in Khmer and Chinese. 0500-0530 17865 Khmer 2300-2330 9730 Khmer 1400-1530 15435 "Chinese" Also from the 15th of January, they are on from Taiwan at 15110 from 2330 till 0030. My information also is that they hope to be using Taiwan plus the Darwin site and interestingly the Tinian VOA site.

I believe that the "Christian Voice" from Darwin has been heard testing on a number of channels but the transmissions were of short duration. No commencement date has yet been announced.

Well that is all for this month. Until next time, the very best of monitoring!

RV

The
WIA Call Book 2001
is available NOW
from your
Divisional Book Store
See page 30 for details

Repeater Link

Will McGhie VK6UU
21 Waterloo Cr Leismurdie 6076
VK6UU@VK6BBR will2@inet.net.au

Never enough time...

Brief

With no time to spare this is all I can produce in a short half-hour. Work is particularly busy during the Christmas New Year period, with the Hopman Cup taking up almost all my time. Can't wait for retirement in less than 3 years.

Still waiting for the license for the 40 metre HF-gateway. Two queries to the local ACA have passed our requests onto Canberra. The license was submitted to the ACA in July last year.

40 Years On

I have an article almost ready for this month on a topic from way back before I obtained an amateur license, Tesla Coils. At about the age of twelve I started to become fascinated with high voltage electricity and built an Induction Coil, followed by a Tesla Coil. I knew little about what I was doing and was never able to make the Tesla Coil work very well. Forty years later, the Internet

opened up a vast volume of information on how to build Tesla Coils. Inspired by this I built a small coil based on the design information from the Internet. If you are on the Internet, do a search on Tesla Coils and be amazed at the sorts of high voltage electricity produced by "ordinary" people, just for fun. Voltages well over one million volts. My efforts so far are modest, but I know now how to make a Tesla Coil stand up and make its presence known. More next month.

Won't Fit

In closing this brief half-hour effort, what little time I have found has been used to re-house my other computer into a bigger case. This all started about a year ago when I decided to add a CD burner. A simple task that failed at step one; insert CD burner in spare CD bay. The CD burner would not fit all the way into the bay. Investigation discovered the memory chips on the motherboard were

in the way. As long as I did not mind the CD burner sticking out a couple of centimetres, it would have worked. I decided against this option and shelved the project. A larger case or a smaller motherboard was needed. The larger case has been purchased and the computer re-housed. What is disappointing about the situation is the manufacturers must have never tried the motherboard in a case that had more than one CD drive. Even in the largest tower case I could find, the last two memory sockets can not be used, if the lower bay is used. We all have experienced this red faced result when finishing a project, only to find the door won't shut etc. But you expect a little more from the experts.

Reminds me of the time I installed some extra speakers in the front door of a car. They worked great but I could not wind the car windows up or down.

Silent Key

John Lindsay-Field VK2AKF

John passed away on Thursday 21st September 2000 following many months of illness. He was born in 1918 and brought up in Melbourne, finally attending Geelong Grammar School. His family later settled at Warbreccan in Deniliquin in NSW, which John ultimately owned and managed for the rest of his life. He and his wife Pam had 5 children, 4 sons and a daughter; the twin sons are now running the property. Like their father the boys went to Geelong Grammar School where John gave lessons in radio voluntarily on Fridays for many years.

He developed an interest in radio in his teens and obtained his call sign of VK2AKF in the mid '30s. Although amateur radio was his great love and joy he was a very public spirited person

serving on many committees and on the Deniliquin Municipal Council for 12 years some of which were as Mayor. He was particularly interested in the development and running of the State Emergency Service where he applied his radio communication skills for their benefit for over 30 years. In fact he was particularly proud of the medal he received from the SES which was their National Medal with Clasp and also received honorary Life Membership.

For many years he was Secretary and President of the Federal Inland Development Organisation (FIDO) where he and I developed a close and lasting friendship. That organisation was responsible for the development and upgrading of the inland highways, such as the Kidman Way, which forms part of

the road from Darwin to Melbourne. Under John's stewardship through FIDO's efforts a major bridge over Cooper Creek at Nappa Merrie was opened in 1992.

He served during the war firstly in the AIF and then in 1941 transferred to the Australian Merchant Navy as a radio officer and over the next 4 years also served in the Dutch and UK Merchant Navies.

John was a member of the Wireless Institute for 62 years, a member of the Geelong Grammar Foundation, VRC, and the NSW RSL. He will be long remembered by his many amateur radio friends as well as those he worked with and inspired in Local Government pursuits.

David Coffey VK2COF

David K Minchin VK5KK

Postal: PO Box 789 Salisbury South Australia 5108

E-mail: tecknolt@arcom.com.au

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All times are in UTC

Tasmania on 10 GHz!

Tropospheric propagation has followed a normal summer pattern so far this year with good ducting along the southern coast of VK3, 5 & VK6. Trans Tasman contacts have been had on a number of times throughout November 2000 to January 2001. Rob VK3EK has been touring around VK7 with both 3 & 10 GHz equipment with good results

Trevor VK5NC, reports ... A new vk7 10GHz record was established on the 3rd January 2001, at 0843 UTC between VK3EK/7 at Bridgeport on the north east coast of vk7 at locator QE39QA and VK3ZQB /P3 at Port Fairy, grid locator QF11DP. Distance 524kms. At 0850 UTC VK3EK/7 worked VK5NC/P5 at Cape Northumberland grid locator QF01HW. Distance 667 kms. Signal reports were 57/59. At 1113 UTC, VK5NC worked VK3EK/7 on 3.4GHz also over a distance of 667kms. Both these contacts are now claimed as respective 3 & 10 GHz VK7 records

Rob, VK3EK/P7 was also heard by VK5DK/P5 on the Bluff, West of Mount Gambier on 10GHz. It would appear Rob's 10 GHz receiver was not working at its best so two-way contact did not result. After these contacts 24GHz was attempted between VK5DK, VK5NC & VK3ZQB but signal levels made voice difficult to copy and no 2 way contacts were madeTrevor, VK5NC

More Microwave Tropo DX

On the 11th of January, 2001 another strong Tropo system lead to good coastal ducting from VK3 & VK5 from 144MHz to 10 GHz. Unfortunately conditions peaked 2 days early for the Summer Field day and with fire bans expected to preclude access to the more favoured sites during the field day, a number of stations went out portable two days early.

Vk3XPD worked VK3ZQB, VK5DK & VK5NC at Mt Edward (approx. 500km's) with 59+ signals on both 5.7 & 10 GHz. From Summertown, about 4km North of Mt Lofty, VK5KK/P5 worked VK5NC/P5 and VK5DK/P5 over the 350km path around 1010 UTC with 59+ signals. At 1027 UTC VK5KK/P5 worked VK3ZQB/P3 at Port Fairy, distance 502km on 10 GHz followed by 5.7 GHz over the same path at 1048UTC. Signals peaked over 59 on both bands. Interestingly VK5KK & VK3ZQB continued to ragchew on 10 GHz for the next 2 " hours with signals rarely dropping below S9! At various stages, different forms of path enhancement occurred including a reasonably long burn from a plane heading East!

Attempts were made to work VK3XPD over the longer 680km path but no path was available on 144 MHz, let alone higher. While Strong coastal ducting was at play, the duct had little land penetration. 144 MHz was also open to VK6 Esperance, at the same time. The Esperance beacon has been heard, in Adelaide and Mt Gambier, almost every morning from 2/1/2001 to 12/1/2001. Unfortunately, Bill VK6AS has not been well, precluding operation.

Tropo DX

Those who have been looking at William Hepburn's "Tropo" site over the last few months would have seen some interesting results from his Tropo prediction charts. Feedback from various quarters indicates that we are now going out more at the right time! It has been helped along by a return to a normal Tropo year. Ducts have been evident, atleast locally, even with relatively high humidity locally.

One observation I have made is the tilt on the ducts across the Bight, confirming that the Albany to Adelaide path is no where as common as perhaps the

Esperance to Mt. Gambier one. The observation would also indicate that this path could well be the best for higher Microwave work. While the path is under the current 10 GHz record, eyes are now set on exploring this further. Another observation is high occurrence of Coastal ducts Vs over land ducts this year. A reversal of last year from a VK5 perspective.

William Hepburn's "VK" maps can be found at http://iprimus.ca/~hepburnw/tropo_aus.html . More work is needed to fine-tune the map Vs actual. Other information from high atmosphere soundings can be used to compliment. If anyone has feedback from other parts of Australia, please pass this on.

Summer Field day

Hot weather and total fire bans/ closed forest roads precluded extensive operation in many parts of VK5 but a good showing in the contest came from VK2,3&4. After the success of the 4-grid square DX-pedition during the Spring Field day with VK5UE and VK5AIM, it was a bit of an anti-climax!

VK2 KU reports ... "On 13 Jan 2001 (Summer Field Day) after a lengthy drought, VK2KU worked: VK3KAI/p at QF54cg (Batemans Bay) on 1296.2MHz at 0415, 51 51 (#12). VK3KAI/p at QF53bu (Dalmeny) on 1296.2MHz at 0538, 51 51 (#13). VK2KU also worked VK4OE/p in QG61 (near Cape Byron) on 144.17MHz at 2036, 41 51 (#55) Thanks Peter and Doug." ... VK2KU.

Ron VK3AFW reports on his "backpacking" station used during the Field Day ... "Last Saturday as I could not go to my preferred field day QTH I spent time in 4 grid squares, QF22, QF21, QF11, QF12 For the first hour or so I operated from the summit of the You Yangs, a small 340-m high mountain near Lara. This involved carrying the station some 1.6-km horizontally and

160 m vertically. Gear was an IC706G, a 7 AH gel cell, a two section 5 m mast, 3 large tent pegs, a hammer, mast guy assembly, roll of RG213, a diplexer and a 3 ele 2m beam and a 6 ele 70 cm beam on the same boom, a couple of hand tools, logbook, pen, a camera and a bottle of water. Total weight about 15 kg. This is the same, except for the antenna, as the station operated on the mornings of 29 Dec 2000 - 1 Jan 2001 from the summit of Mt Buller (1800 m) near Mansfield.

At Mt Buller I used a 6-element beam for 2m and the same on 70-cm hoping for some 3rd harmonic performance. This was improved by taping a full wave (on 70 cm) loop to the 2m driven element. My experience with this arrangement motivated me to make a new beam for backpacking operation. I also did not want to have to spend much time assembling the station. The 6 element started life as an NBS 5 ele. Each element was attached to the boom with a plastic mount and butterfly nut and bolt. This took up little room in a vehicle, however the balun feed to the folded dipole has broken on several occasions necessitating emergency repairs - hence the tools and a bit of hook-up wire in the kit. It also took longer to assemble than I liked.

I decided to go for a small single boom yagi for 2m and 70cm. The Kent Britain Cheap Yagi design appealed to me as a "no fuss will work" approach. Kent used one 25 mm x 25-mm wood boom per band, but I wanted to make things as simple as possible so decided to build two yagis on the one boom. The 70-cm beam is in front of the 2m beam. I left a 125-mm space between the 2m director and the 70-cm reflector. Two holes were drilled here to take a TV mast mount. The elements are all 0.125 inch or 3mm dia. - the directors are aluminum rod - the 2m driven element is brass and the 70 cm driven element is silver-solder rod. It worked every bit as well as I hoped. The 2m elements flop a bit and I'll look at using thicker elements for another version, however, Kent's design is for 3 m elements so changes here will have a degree of risk. The whole thing is built on a 1.2m length of 20 x 40 mm DAR hardwood which is strong, reasonably light and easy to carry. Pine would be lighter again and if knot free would be preferred. I had the hardwood in the garage.

Microwave Primer Part Nine: Antennae for 10 GHz

Last month we discussed the various ways of getting RF to the antenna. A good article appears in the Jan/Feb 2001 issue of QEX regarding circular Waveguide for those interested in using the 1" copper pipe. This month we get onto antenna. Again what is outlined is equally applicable, albeit scaled, for 1 GHz to 24 GHz. Antennas at microwave frequencies fall into two groups, direct radiating and focused radiating using a concave reflector.

Direct radiating include the humble dipole (15mm long!), open Waveguide, conical or pyramidal horn and slotted Waveguide. I have yet to see a yagi made for 10 GHz but if you can make ships in a bottle then maybe you could try it! Focused radiating types are typically prime focus or offset dishes. Invariably antennas in the first group feed the second group so this discussion will concentrate on the feed/dish scenario. Gain of a dish is proportional to its 2 dimensional surface area multiplied by the dish efficiency factor. Typical dish efficiencies vary from 30 - 65%.

A prime focus dish is one that has a focus located along the centre line of the dish. The paraboloid shape is uniform around this centre line, i.e. it looks like a wok! The focus of the dish is measured as a fraction of the diameter. Typical "F/D" ratios vary from 0.3 - 0.6, with 0.35 being common. The angle of radiation required to efficiently illuminate a 0.35 F/D dish is approximately 135 degrees in both planes. Feeds are usually selected so the -10db points correspond with this beamwidth. This restricts feed types to simple dipole reflector types or splashplate types like the "Penny" feed. Unfortunately these feeds tend to under illuminate the dish in one plane more than another, typical efficiencies end up being as low as 25% and not much better than 45% at best. Some of this loss is also attributed to blockage from the feed as well as under illumination around the centre line.

An offset fed dish is one that has the focus offset along one plane parallel to the centre line. The feed can be offset anything up to 30 degrees from the mean dish centre. Angles greater than 25 degrees usually places the feed out of the line of the actual dish boresite

eliminating feed blockage problems. Some dishes mostly intended for satellite use smaller offsets or Oval shaped reflectors to give wider beamwidth in a particular plan. This is usually done so two DBS satellites on close orbits can be covered by one dish heading. The feed almost always faces skyward towards the dish, highlighting another advantage ... no ground noise pickup from feed spillover. This is also applicable for terrestrial use where prime focus can exhibit some ground noise pickup from underside spillover.

An offset dish is still a paraboloid despite it having a complex shape. It is simply part of a larger paraboloid. Being part of a larger dish means its F/D ratio is correspondingly higher. Typical DBS satellite dishes have a F/D of 0.6 or higher, with a 28-degree offset. This type can be visualized as a petal on a prime focus dish about 210% bigger. This property of an offset dish and some math's can be used to calculate the focal point and illumination angles. The derived illumination angles are then used to design the feed antenna, either a conical/chaparral feed or a pyramidal horn. I like the pyramidal horn feed; in fact W1GHZ has a program that calculates the horn dimensions from the offset dishes basic dimensions! Due to the higher F/D the beamwidth is only around 60/80 degrees. It is far easier to get a uniform horizontal and vertical pattern from a feed at these angles, hence offset feeds can have up to 65% efficiencies. That's 3db better gain for the same surface area as a poorly illuminated prime focus dish!

Last year, at VK5LP's QTH we sat down and compared two receiving systems. One 600mm prime focus dish with dipole feed and one 600mm offset dish with horn feed. Using Sun noise as the reference, the prime focus could barely detect sun noise (under 1 db). The offset dish had better than 3 db sun noise. Eric was left with no doubt as to which one should go up his tower!

The offset dish is the better performer however this comes with one disadvantage .. the offset along one plane has to be allowed for when aiming. While the angle can be calculated and allowed for in fixed station use, some form of "sighting" apparatus is required to locate the horizon, especially at night. This may be as simple as a sighting tube offset at the correct angle. At night you

could almost use a Laser LED pointer if enough moisture or dust was in the atmosphere.

Turning to direct radiators, any of the above feed antennae can be used as direct radiators. A Large Horn feed can have up to 18-20 dbd gain. Waveguide can also be used as a radiator with about 6-8 db gain. Another way of using Waveguide is as a "Collinear" type radiator using the slotted Waveguide. The slots are 'wavelengths parallel to the run of the Waveguide on one or both of the wide sides of the Waveguide. When the Waveguide is slotted on both sides and mounted vertical, a low angle horizontal omnidirectional antenna results. 8 slots on either side will give around 10-dbd gain. If you slot one side you end up with 13-dbd gain over an arc of about 150 degrees. Slotted

waveguides are used mostly for beacons & ATV repeaters however they have been used for mobile operation too!

In Closing

Commercial manufacturers, of late, seem to be taking renewed interest in producing all mode transceivers that include VHF and above frequencies. The following is not a product endorsement or advertisement however this new transceiver breaks new ground! Yaesu have introduced, overseas, a new "Portable" all mode transceiver, the FT817. The FT817 is of similar size and configuration to the FT290/490/690 series all mode portable transceivers of the eighties. More appropriately, it could be described as a portable version of the FT847 base unit. Yes, the FT817 HF plus 50/144/432 MHz multimode including

PSK31 and 9600 baud packet!

The FT817 transceiver is best described as QRP unit with no more than 5watts on any of the bands or 2.5-Watts when running from internal batteries (either 8 x AA cells or a Nicad pack). Release details promise a high level of specification, similar to that offered in larger mobile and base HF/VHF & 430 Transceivers. Its use for driving higher frequency transverters is perhaps one application that goes begging! No word on any local release, with the Australian dollar performing as it is, one can only hope it isn't priced past its worth. We will have to wait and see.

I'll leave you with this thought... "Did the first roll of toilet paper come with instructions?"

Till next month

73's David VK5KK AR

BT



Les Bell VK4 LZ

Les Bell MBE (MLY) 4LZ, Airlie Beach, died after a short illness on 11th December, 2000, aged 97.

He was the founder, Net Controller and Mentor of the long running Coral Coast Group which he started on 28th September 1967 — non-stop, 7 days a week, 21.00 hrs GMT frequency 7.060 MHz. Only two original members remain out of thirty eight — Charlie 4BQ and his wife Evvy VK4EQ. Approximately twenty have passed on since its inception, including Les's wife Bertha some ten years ago.

He started very young in Radio on Spark Gap transmission, and until his demise could still do 30 wpm Morse. He received his citation for installing Radar behind the Japanese lines.

In a World Wide Radar reunion he was the star attraction held at the Rocke Complex Soldiers Point in Newcastle.

In his early days he was a marine engineer on a badly leaking vessel coming back from France. He jumped ship at Kaveyony and worked for a German named Wynder in his machine shop. He later purchased the business

from his employer, and employed the natives in exporting copra. At that time Errol Flynn (the movie actor), then nineteen, was a labourer in his workshop.

In the early Japanese invasion of New Guinea, Les and his two brothers were Coast Watchers, sending essential information to the RAAF. His elder brother Lincoln lost his life in that enterprise. It is all recorded in the book "The Coast Watchers".

At the age of forty two, he decided to try to join the RAAF as a pilot by putting his age back, but was soon found out and relegated to Radar.

A New Zealand author, Gillian Shadbolth, has almost finished writing his life story.

All who were associated with Les will agree on his mental and physical fitness, his high moral standards, his intelligence, his remarkable achievements and his modest character.

A legend that the passage of time will not eliminate.

Les VK2AXZ

BT

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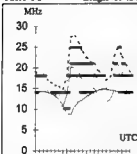
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www: http://www.tower.com.au

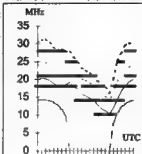
Adelaide-London

First F 0-5 Long 23755 km



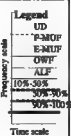
Brisbane-Dunedin

First F 5-9 Short 2360 km



February

2001
T index 114



HF

Predictions

by Evan Jarman VK3ANI

34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.

These frequencies are identified in the legend are -

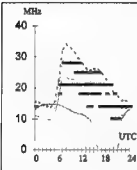
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.

These predictions were made with the ionospheric Prediction Service program ASAPS Version 4

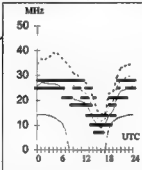
Adelaide-London

First F 0-5 Short 6269 km



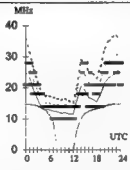
Brisbane-Honolulu

Second 3F5-12 3B0 Short 7569 km



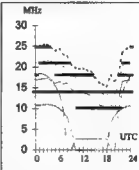
Canberra-New York

First F 0-5 Short 6218 km



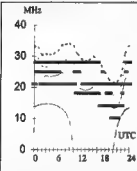
Darwin-Auckland

Second 3F12-18 3B2 Short 5133 km



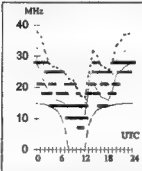
Adelaide-Manila

First 2F3-10 2B0 Short 5813 km



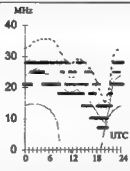
Brisbane-Miami

First F 0-5 Short 4759 km



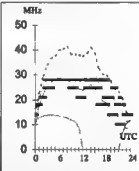
Canberra-graph 10

Second 3F4-10 3B0 Short 7948 km



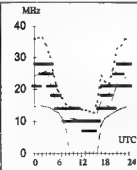
Darwin-New Delhi

Second 3F6-13 3B0 Short 7347 km



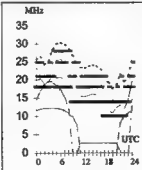
Adelaide-Vancouver

First F 0-5 Short 3421 km



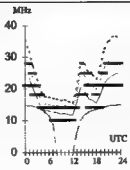
Brisbane-Singapore

Second 3F9-16 3B0 Short 6147 km



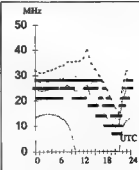
Canberra-Washington

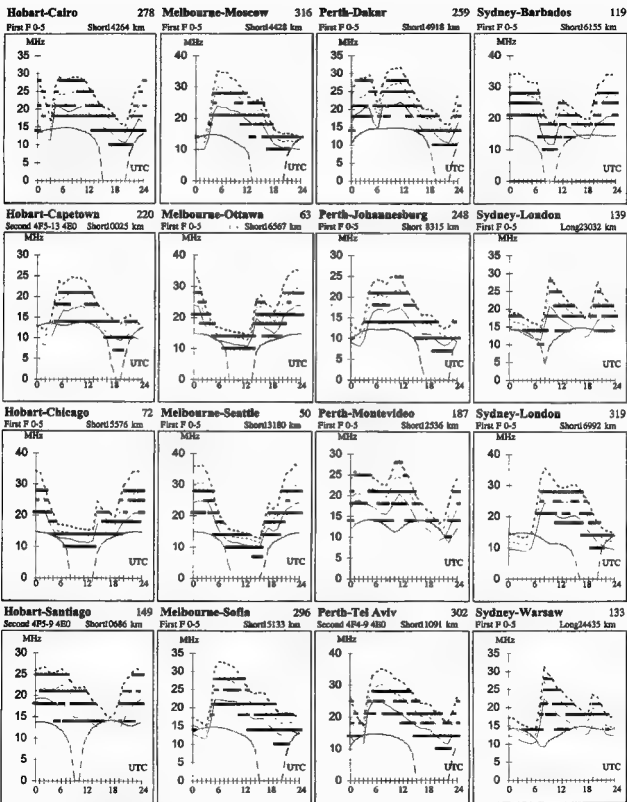
First F 0-5 Short 5939 km



Darwin-Osaka

First 2F4-11 2B0 Short 5263 km





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- Hamads may be submitted on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
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- QTHR means the address is correct in the current WIA Call Book.
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WANTED - ACT

Yaesu FT90R and/or accessories: Icom Yaesu or Kenwood power supply around 25amp; Icom 706 MKII accessories; Icom IC4K1. All items in good condition John VK1CJ 02 6251 1816 QTHR

FOR SALE - NSW

Tower 60ft. 10x6ft sections, guyed HD commercial tower (still standing) CW prop pitch motor in base enclosure; controller in shack. A1 cond; no rust; CW guys, turnbuckles, mercury limit switches, seayn ind cator tx, motor power transf. Price \$950 ono: buyer to remove with ass. from seller on ground. Also, 4 e ment, 20 metre homebrew yagi beam. 31ft x 3 inch boom in A1 cond; no corrosion, on the ground. Price \$2500 - a bonus to the tower buyer QTHR AT VK2AS 02 9416 7784

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Kenwood TS820S transceiver with owner and service manuals and Shure 444 mks \$420. VK2OW Maurice 02 9838 1834

WANTED - NSW

National HRO HF coil boxes and original receiver instruction manual required Allan VK2GR QTHR Ph 02 8850 0141 Email, vk2gr@hotmail.com

Book and circuit diagram for Denton linear amp MLA 2500. Buy, borrow or copy and costs. VK2BGP QTHR 02 4982 9748

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Kenwood Transverter model TV-506 6 metres. In working cond. State price, David VK2AIF Ph 02 6586 4980 or QTHR.

FOR SALE - VIC

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Vintage Radio Auction My complete collection 250 major items - Empire States, Comm. Recvrs, Military, 1000's components, brrs "in place. At Swanpool (Young's place, remember?) March 4th. For details/catalogue

send blank email to: vinraduction@getresponse.com OR view: http://maxlink.com/harvey OR Post large \$660 to VK3AHU P.O. Box 40 Violet Town 3669 03 5796 1451

Galvanized tower sections 3m by 350mm triangular section plug together easily transported 24 available \$70 each. 4 tubes 1.5m \$40. Flexible steel guys with turnbuckles. Photos available. Large quantity 16g hard drawn copper antenna wire 50c per metre. Bill VK3AMH QTHR 03 5794 2004 email: vk3amh@ack.net.au

Deceased estate Yaesu FT 980 HF transceiver with manual \$800. IC24T 2m/70cm hand held (batt flat) \$150. Packrat 232 with operators manual \$200. Bencher iambic keyer chrome base \$50. ATN 13-30-8 log periodic HF beam \$500 (you remove). Emtron ENB 2 noise bridge \$40. Model 171 SWR/PWR twin meter bridge \$20. Drake TR7 250 watt all band HF transceiver with power supply, mic, workshop manual, mint condition \$1000. All above, you collect. No reasonable offer refused. Discount if you take the lot. Mike 03 5433 3654

Shack cleanout. E.L. 9 valve comms RX mod. HCR 62, \$50. Icom IC22S, \$50. Pye overland mod.F25 conv. to 2 metres 5 chan. \$20, or the lot for \$100. Vic, VK3KYV, QTHR, 03 9754 4860

English 'Television' magazine, all issues 1962 to April '97. Offers? Fred VK3JM 03 9801 4972

Drake TR7 transceiver with P/S mike speaker and L75 linear, Yaesu CRO Monitor. Alt for \$2000 or sell separately. VK3LC QTHR Ph 9773 5334

FOR SALE - QLD

Shack Clearance: Kenwood TS 430V HF xcvr. PS 430 Power supply. TM 221A 2m mobile 50watts. TM 421A 70cm mobile 35watts. TR 7200G 2m Xtal mobile 10watts 10channels. SW200 swr/pwr meter. Spoken Type 250 HF linear 10db. Yaesu FT224 2m xtal mobile 10watts 8channel FT 232 2m HH. Icom IC2A 2m HF. Realistic Pro 32 2000h Scanner. Phillips FM320 40ch UHF CB. Kenpro KR400 rotator. Kantronics KPC3 packet TNC. Plus numerous other items. Tenders are invited for this gear, deadline 31st March. For complete list, more info, or to submit tender, Call Neil VK4NF QTHR, or Email nwholmes@ozexpress.com.au. Phone 07 4662 4950. Packet. VK4NF@VK4YH

WANTED - QLD

WWII type 382 transmitter and telradior receivers, also AMR100 receiver, power supply, and plug in coil boxes, always after services amenities receivers Tasma AM5, AWA C17020, Stromberg-Carlson Ray VK4FH Phone 07 3299 3819 Fax 07 3299 3821 P.O. Box 5263 Daisy Hill 4127

WANTED - SA

AWA Telradior 38 Transmitter type J7698 or 8J6798 for museum display. Also interested in a Type C6770 or 3C6770 receiver (with the internal vibrator power supply Type H6499) or the vibrator supply alone. Tony VK5UA QTHR Ph 08 8269 4095

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MISCELLANEOUS

• If you got your licence before 1975, you are invited to join the Radio Amateurs Old Timers Club. A \$2.50 joining fee plus \$8.00 for one year or \$15.00 for two years gets you two interesting Journals a year plus good fellowship. Arthur Evans VK3VQ or Allan Doble VK3AMD can supply application forms. Both are QTHR in any Call Book

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunria Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

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• **AMIDON FERROMAGNETIC CORES:**
For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boonyo Ave Kiama). www.cyberelectric.net.au/~rjandusimports

Agencies at: Active Electronics Tas, Truscotts Electronic World, Melbourne and Mildura; Alpha Tango Products, Perth; Haven Electronics, Nowra

• **WEATHER FAX** programs for IBM XT/ATs *** "RADFAX" \$35.00, is a high resolution short-wave weather fax, Morse and RTTY

receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" \$45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" \$75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add \$3.00 postage. ONLY from M. Delahunty, 42 Villiers St, New Farm QLD 4005. Ph 07 358 2785.



- Note 1 Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA.
2. Some of the letters may be shortened to allow more letters to be published.

Bearings

Reading my October 2000 A.R., I note where you asked re a program giving bearings from a designated location to cities around the world. I purchased one such list about 12 years ago from Bint Services, Box 323 Cheltenham Vic.

They also put out QSL cards. The list was very comprehensive; it listed both paths and distances, to just about every city and known location on the planet. Of course there is the chance this firm may no longer be operating. However, someone must have the computer readouts. I hope my info will give you a start. I am enclosing a page to show how they go about it.

Apparently once they have your location your position is fed into the computer and out comes your bearings.

My regards and best wishes to all staff keep up the good work.

73 Les Hawkins VK4DA.

Personal Computerised Heading List For : L. Hawkins (VK4DA) Bundaberg - Q'land. Headings are based on true north - allow for local magnetic variation

If QTH is suburb close to city - i.e. Adelaide/Glenelg then heading/distance from Glenelg to Adelaide may be incorrect. This is due to the fact that the program is formatted to DX headings - not short distances..!

Beam Headings Based On:
Bundaberg - Q'land. Latitude 24
52deg South Longitude, 152 21 Deg East

Morse and Mazdalsm

I thank Ian Gray (Amateur Radio September 2000) for his Zorcrastian contribution to the debate.

It drew attention to some personal slack thinking about Morse code and other technical and social lattitudes.

I had forgotten a contact made with a young couple mobile in central Australia whose microphone had been crushed. They could only reach me by tapping two wires together.

The same couple were later rescued from rising floodwater.

Upon reflection I must go back to Morse code and passive repeaters; leaving it to the incomprehensible to pursue the intangible and tell us where they are going, and perhaps why.

Fred Smith VK2EN/ACP

QSL Exchanges

Thank you, John G. Lyons VK2NDR for your letter in November AR. I too have been thinking about QSL cards, firstly that it is a long time since I have seen anyone advertising a QSL card design and print service, and secondly that the exchange decline is most apparent. Regarding the first point, I have made my own cards, laboriously hand-written, photocopied, then pasted on to cardboard.

Johns' concern about the worldwide decline in card exchange is valid. I recently discovered that to send a card to Russia and South Africa would cost \$1.50 each at Air Mail rates, and the previously available Surface Mail has been abolished! At these rates it is sensible to use the worldwide (free)

service as offered by the WIA, even if it takes a lot longer. By doing this I will save a lot of expense and hopefully help the WIA and other QSL bureaux survive.

Trevor Mitchell VK3PP

Morse still most efficient

I have been incensed by the letter from Ian Gray in September AR. I cannot possibly agree with his views. Unfortunately, for some of us some types of learning are more difficult than others. Learning Morse Code is a great hurdle for some people.

However, we do have set standards and need to adhere to them. In my view, good CW operators do not use computerised morse code. I feel those who do are unacceptable as good CW operators as accuracy is sacrificed for speed. The uncorrected errors show up very quickly those who are trying to short cut the system. Like driving, speed under control is essential. These days a great percentage cannot send 10 words without an uncorrected mistake. We are now moving to an era where those who use Morse code will do so because they want to and it is still the most efficient mode to use in the circumstances for accurate communications.

For Mr. Gray and others - I would suggest you pass your 5wpm test. Thousands of people have done it before. By doing so, you open yourselves up to a brand new world of communications and join a band of operators who are as good as any and better than most.

G.W. Lanyon VK2AGL

<http://www.hamsearch.com>
a not-for-profit site that is a search engine for hams

Ionospheric Update

by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

This quarter the *Ionospheric Update* returns to a more familiar format.

The predictions relating to the peak of solar cycle 23 cannot be tested yet. The smoothed sunspot number is by definition not available till six months after the event. It will have to wait two quarters (at least) before a quantitative change in trend is known.

Solar activity ranged from low to high during the quarter. Activity was low to moderate in October, moderate to high in November and low to moderate again in December. The flare activity reflects this; 10 M class flares in October, 18 M and 5X class flares in November with 7M class flares in December.

Geomagnetic activity also rose and fell during the quarter.

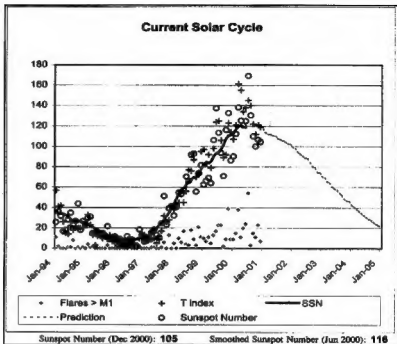
From 3 to 5 October conditions increased to major storm level

From 13 to 14 October conditions were active.

The observation graph shows these variations quite clearly. Note the simultaneous fall in T index indicating a loss of radio propagation.

There was also a minor storm from 28 to 29 October.

In November there were strong magnetic storms. They occurred on 6-8, 10 and 27-29 November. Their effect can also be seen on the observations graph. The strong rise in the Learmonth A (geomagnetic) index and the



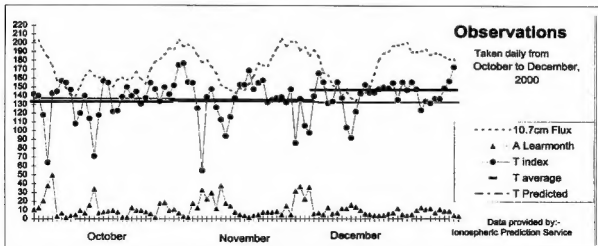
simultaneous fall in the T index indicate a loss of propagation and the cause. These storms were associated with coronal mass ejections.

Geomagnetic conditions were unsettled to active from 6 to 8 December and 23 December.

The graph of the current solar cycle

has been modified to incorporate the monthly sunspot number. Only smoothed sunspot number is shown as a line for it gives the trend. The most recent sunspot and smoothed sunspot numbers are also included. This graph is expected to appear monthly in the future; on its own

BF



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